Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENT.

VOL. 2. NEW YORK, JULY 31, 1847. NO. 45.

THE NEW YORK
SCIENTIFIC AMERICAN:
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.

TERMS:—$2 a year—$1 in advance, and the remainder in 6 months.

☞See Advertisement on last page.

POETRY.

LAUGH, LADY, LAUGH.

Laugh, lady, laugh!
There's no avail in weeping;
Grief mas never made
To be in beauty's keeping.
Tears are of a stream,
Where pleasure lies decaying;
Smiles, like rays of light,
O'er sunny waters playing,
Laugh, lady laugh.

Sing, lady, sing;
There is a charm in singing,
When melody its spell
Upon the air is flinging,
Sweet sounds have often won
More than the fairest faces;
And Harps have always been
The plaything of the graces,
Sing, lady sing.

Love, lady, love;
There's always joy in loving;
But sigh not when you find
That man is fond of roving;
For when the summer bee
Takes wing through beauty's bowers;
He knows not which to choose
Among so many flowers,
Love, lady love.

CHILD EMBRACING ITS MOTHER.

BY THOMAS HOOD.

Love thy mother, little one!
Kiss and clasp her neck again—
Hereafter she may have a son
Will kiss and clasp her neck in vain—
Love thy mother, little one!

Gaze upon her living eyes,
And mirror back her love for thee—
Hereafter thou may'st shudder sighs
To meet them when they cannot see.
Gaze upon her living eyes!

Press her lips the while they glow
With love that they have often told—
Hereafter thou may'st press, in woe,
And kiss then till thine own are cold.
Press her lips the while they glow!

Oh! revere her raven hair
Altho' it be not silvery grey,
Too early death led on by care,
May snatch, save one dear lock, away.
Oh! revere her raven hair!

Pray for her at eve and morn,
That Heaven may long the stroke defer,
For thou may'st live the hour forlorn
When thou wilt ask to die with her.
Pray for her at eve and morn!

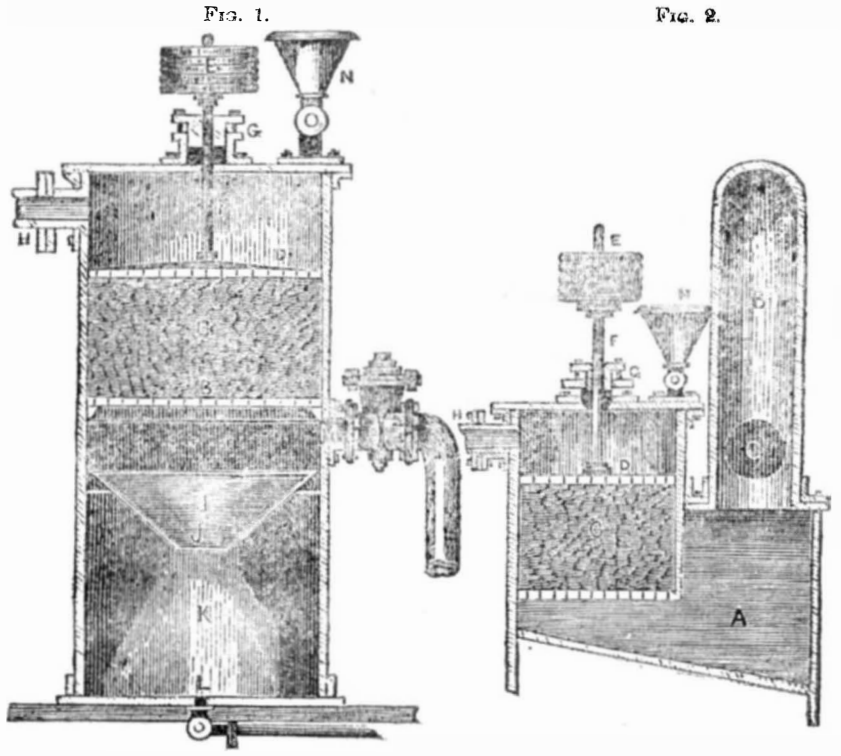
An Industrious Woman.

Talk indeed, of your pantomines and gaudy shows, your processions, and installations, and coronations! Give me for a beautiful sight, a neat and smart woman heating her oven, and setting in her bread. And if the bustle does make the sign of labor glisten on her brow, where is the man that would not kiss that off rather than a plaster from a Duchess! Them's our sentiments.

One of the Mexican states is called Zacatecas, which is there pronounced *Zachy gale us.*

WATER FILTERER FOR STEAM ENGINES.

Fig. 1. Fig. 2.



The above is an engraving of an invention for the construction of filters to be used in connection with steam engines and boilers and consists in so arranging and adapting them to the hot-wells of steam engines, that the many disadvantages resulting from the incrustation in boilers would be seldom, if ever known. For this object Mr. N. Harvey, of St. Erth, Cornwall, England, the patentee, prefers to employ compressed sponge, through which the water, during the process of filtering, passes, a pressure being exerted beheath the sponge by the action of force pumps the the purpose of driving it through; the effect of which causes the sponge to arrest, during the passage of the water, the mud or sediment which it afterwards deposits in a suitable chamber, preparatory to its being taken or cleared away, as hereinafter explained. The engraving, by reference to the letters thereunto annexed, will represent vertical section of a single cylinder, or filtering apparatus. B, represents the fixed plate or perforated partition, sustaining the pressure of the sponge from above; C C, the compressed sponge or filtering material; D D, the perforated pressure plate; E E, circular weights; F F, connecting rods or shafts on which are fitted the accumulating pressure weights; G G, stuffing boxes; H H, egress pipes for supplying the feed; I, an inverted conical diaphram, placed under the compressed sponge, or filtering material having a hole or opening, J, at its apex, through which the mud or sediment passes; K, the mud or sediment chamber; L, a sediment release tube; M. the ingress, or supply pipe to the filterer; N N, a funnel-shaped tap situated at the top of the cylinder, for supplying water to the apparatus for the purpose of washing the sponge or filtering material. Fig. 2 represents a side elevation of the filtering apparatus atached to the hot-well of a steam engine. A, is the hot-well; B, the exhaust chamber; C, the condensed steam passage or supply tube, the action of which is as follows: Sponge or other suitable filtering material is placed between two perforated plates, and compressed by reason of certain weights exerting a gravitating influence or pressure upon the sponge or other suitable filtering materials aforesaid; the water to be filtered is then driven through the compressed sponge, in an upward direction, by the action of force pumps attached to the engines, leaving behind all impurities in the body of the sponge. The application of a double filtering apparatus for purposes aforesaid, consists of two cylinders placed side by side in connection with each other, having two two-way cocks and pipes leading therefrom, in such a manner that when it is necessary to clean one or the other out, these cocks are turned in the required direction, shutting off the communication from the one cylinder while the other cylinder is in operation, as before described.

Curiosity.

A traveller going from Erie to Pittsburg, fell in with a Yankee, both being mounted on horseback The first was rather inclined to taciturnity, and bore with great patience the questions with which the New Englander bored him Finally, upon the Yankee noticing that the traveller had lost an arm, and inquiring the reason, he replied, "I will tell you, my friend, if you will promise, on your honor, to ask me no more questions." The promise was made. "Well," said the stranger, "it was bit off." The Yankee rode on in silence for several miles, but in an agony of curiosity. At last, in a transport of despair, he exclaimed, "I vow to gracious, I would give a shilling to know what bit it off."

"I knows well enough," said a green one, "where fresh fish comes from—but where they *catch these ere salt fish*, I'll be hanged if I can tell."

New, 'Pon Honor.

"I'll take two children, if I can have 'em cheap?" said a tall Yankee on entering an oyster cellar in Canal street the other day.

"Two children?—what two children?"

"Why, I hain't got any myself, and your sign reads *Families supplied*,' don't it? I want you to supply me with one!"

Grinding Tools.

"William," said a carpenter to his apprentice, "I am a going away to-day, and I want you to grind all the tools."

"Yes sir." The carpenter came home at night. "William have you ground all the tools right sharp?"

"All but the *handsaw*," said Bill, "I could'nt get quite all the gaps out of that."

"Hail, wedded Love," as the man said to his wife when asked what was breaking the windows.

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 24th, 1847.

To Jesse Bullock, Jr. and Sewall Benson, of New York, for improvement in machines for Paring Apples. Patented July 24, 1847.

To David Cannon and Heman S. Lucas, of Chester, Mass., for improvement in composition for Fire Bricks. Patented July 21, 1847.

To Richard M. Hoe, of New York, for improvement in Rotary Printing Presses. Patented July 21, 1847.

To Richard M. Hoe, of New York, for other improvement in Printing Presses Patented July 24, 1847.

To Emanuel Parker, of Camden, South Carolina, improvement in Water Wheels. Patented July 25, 1847.

To Timothy Gilbert, of Boston, Mass., for improvement in Metallic Frames for Piano Fortes. Patented July 24, 1847.

To Alexey W. Von Schmidt and Julius H. Von Schmidt, of Washington, D. C., for improvement in centrifugal lamps. Patented July 24, 1847

To William James Cantelo (residing in England, for improvement in Artificial Incubation. Patented July 24, 1847.

DESIGNS.

To Nathaniel Bachelor, of New York, for design for Clock Frames. Patented July 24, 1847.

To James Albro, jr. of Elizabethtown, N. J. for design for Floor Cloth. Patented July 24, 1847.

To Don A. Booth, of New York, for design for ornamental Buttons. Patented July 24, 1847.

RE-ISSUES.

To Elijah Pratt, of New York, for improvement in Artificial Nipples. Patented August 4, 1845. Ante-dated July 4, 1845. Re-issued July 24, 1847.

INVENTORS' CLAIMS.

Couplings for Cars.

Invented by William C Russey, of Buckgrove, Illinois. Patented 17th July, 1847.—No. 5194. What he claims as his invention, and secures by letters patent, is coupling and uncoupling cars by means of an eccentric tumbler, revolving roller, turning dog and coupling bar, constructed, arranged and operated in the manner and for the purpose set forth, the coupling being effected by the motion of the car.

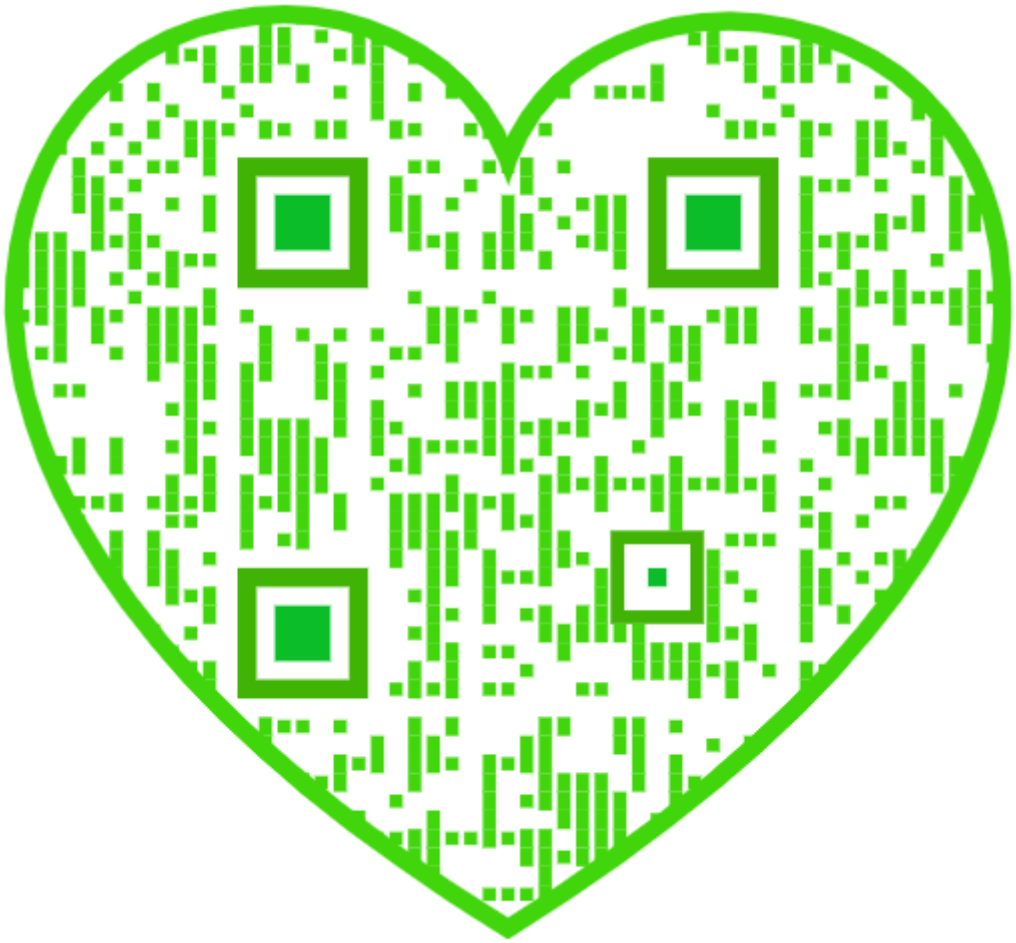
Cultivator.

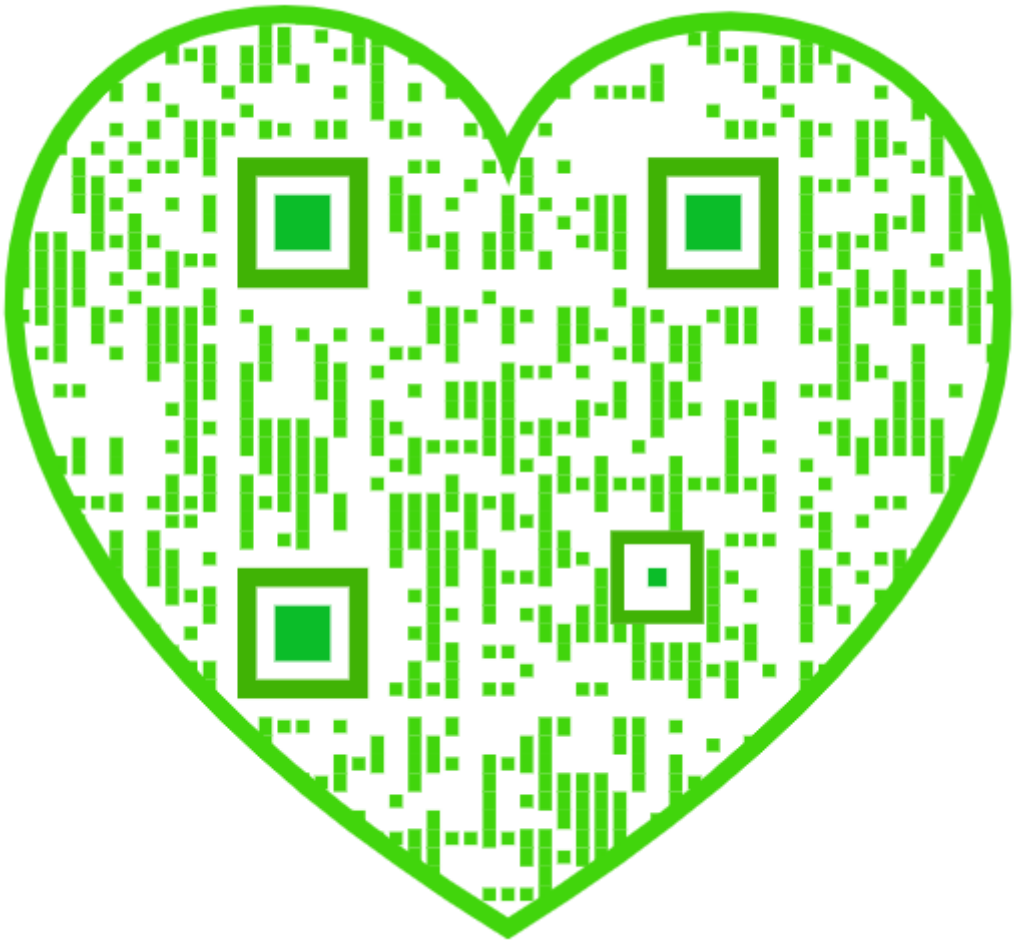
Invented by Alanson E. Odell, of Royalton, N. Y Patented 17th July, 1847. No. 5195. What he claims as his invention and secures by letters patent, is first the combination of the two double jointed, hinged and wheeled wing frames, containing side cultivators, with the central frame containing the third wheel and central cultivator, constructed, arranged and operated in such manner that undulatory land may be cultivated in uniform depths of furrows, without straining or breaking the frame—the cultivators being made to accommodate themselves to the hills and hollows and other inequalities of the land, by means of flexible central joints or hinges, attached to the aforesaid central frame. Second—he also claims combining a thin wheel with the two side wheels in a jointed, flexible or folding cultivator frame, made in the manner above described.

Reaping Machine.

Invented by William F. Ketchum, of Buffalo, N. Y. Patented 10th July, 1847. No. 5189. What he claims as his invention and secures by letters patent is, the endless chain cutter in combination with the pulleys and rack teeth for cutting grain and grass as described. He also claims the crooked arm or coupling piece in connection and combination with a rack piece and frame.

© 1847 SCIENTIFIC AMERICIAN, INC





What is doing on the great "Father of Rivers."

On the first day of the assembling of the Chicago Convention, Thomas Allen. Esq., submitted a report drawn up by him at the request of the delegates of St. Louis, relative to the commerce and navigation of the valley of the Mississippi. It is stated in this document that in 1846 the receipts at New Orleans from the upper country amounted to 77 millions of dollars; the steamboats engaged in the trade of St. Louis were 251; and the whole number on the Western rivers near 1200, valued at 16 millions of dollars, to which are to be added 4000 keel and flat boats. The annual cost of transportation is 41 millions. The total value of the domestic products put afloat upon the waters of the valley is 260 millions; and the value of the whole commerce afloat is 430 millions, being double the amount of the whole foreign commerce of the United States. The number of steamboats lost in 1842, was 68; in 1846 the number was 36.—The annual loss of lives is 160. The *snags* it is well known, have caused many of these disasters.

Another Comet.

A new comet was discovered on the 14th inst at the Cambridge Observatory, by G. P. Bond, being the fifth comet first seen in this country by this gentleman. It was found with the aid of the excellent comet-seeker recently presented to the Observatory by J. I. Bowditch, Esq. Through the grand refractor the comet shows a bright nucleus surrounded by a diffused nebulous appearance. The comet, having a very great northern declination, does not set in our latitude. Its approximate places were as follows:

July 12, 19h 0m. Right Ascension 16h. 24 m. Declension 85° 17' 0."

July 20, 19h. 23m. Right Ascension 13h. 59m. Declension 80° 53 12"

Forgers.

An engraver, named Lovejoy, and two other persons, were arrested in Cincinnatti, a short time since, on suspicion of being concerned in counterfeiting, and committed for trial. Upon searching Lovejoy's house, one plate, nearly ready for printing spurious money, was discovered; and in the residence of one of the others, named Sleight, sundry plates, and a large quantity of counterfeit notes, amounting in all to about $1000, was taken. This is said to be the most important arrest made in Cincinnatti for some time past.

Copper from the Sault.

By the Schooner Lena 44 tons of native copper was shipped a short time ago for Boston and there are now 90 tons more of the same metal waiting for a vessel. This copper is in masses weighing from 500 to 3,500 lbs. and is of the very richest quality of native copper, and is worth in Boston $400 per ton From the mine, we learn that they are raising immense masses of native copper, and that the great difficulty consists in cutting up the masses into small pieces to enable the shippers to get them on and off the vessels.—One mass weighing 3,700 lbs. will be sent to England as a specimen of what Yankees can do in making copper

A Humbug Exploded.

The grand project of raising Capt. Kidd's vessel at Caldwel's Landing on the Hudson, and obtaining vast treasures—a project in which a large amount of money was embarked by credulous men, has proved to be what many suspected, an egregious humbug, originating in fraud. It is now known that a gun which had been taken from the wreck, pieces of gold, coins, &c., were deposited there a a few days previous, that this discovery might cheer the hearts of the stockholders, and induce others to purchase shares!

According to an official statement made to the Illinois State Convention the entire public debt of that State is $14,042,618 22.

Something New.

The splendid steamboat Louisiana, running between Buffalo and Chicago, is provided with a number of colored waiters and servants who within themselves compose a band of choice musicians, and every evening the ladies' cabin is graced with a ball, accompanied by their music. They are vocalists too, and treat passengers to some of the best strains of the Sable Harmonists. To add to the harmony of the evening, the lady passengers frequently lend their sweet voices, accompanied by the piano, with which the ladies' cabin is furnished.

Ether.

The Boston *Traveller's* London correspondent asserts that the use of ether in England is doing more harm than good. That it has an injurious effect upon the blood, produces tubercular consumption, and in thirty cases of death after its use, recent tubercles have been found in the lungs, believed to be the product of ether

A New Manufacturing Company.

A company has completed a contract with the Water Lot Company, for the purchase of a site, in Columbia Georgia. A building 120 feet in length and 5 stories high, is to be commenced immediately, and the establishment is to be put into operation, as speedily as possible. $40,000 have already been subscribed, and the capital can be increased to $100,000 as it may be needed.

Scarcity.

On Saturday week a merchant at St. Louis filled an order from Dubuque for 200 barrels of flour. The same flour was brought from Dubuque to St. Louis a fortnight previous by the same boat that carried it back. So great has been the demand for this staple, the Reveille says, that many portions of the upper country are completely drained of supplies.

Love-Letter Ink.

A Yankee has invented a new kind of ink called "the love-letter ink," which is a sure safeguard against actions for breach of marriage, as the ink fades away, and leaves the sheet blank, in about four weeks after the letter has been written. The truth of this invention so universally noticed, is just about as lasting as the ink.

Indians.

A number of Iowa Indians passed through Cincinnatti last week, on their way to Washington. Among them was an old chief who had been in Nineteen battles, and had once been scalped. His name is Saw-tu-stob-enne-to, or red fire, and his age is upwards of ninety

Copper Ore.

It is not known generally, says the Alexandria Gazette, that examinations are making in Prince William county, Va., for Copper, and that the progress thus far has been favorable. Twenty-five hundred pounds of ore, from an excavation near Brentsville. were brought to town yesterday, to be shipped to Boston for examination and proof of its quality.

Pennsylvania Coal.

Pennsylvania alone contains an area of coal land five times the extent of that possessed by Great Britain. Her iron mines are also very extensive—probably equal, if not superior to those of the mother land. And yet the annual product of the mines of Great Britain is computed at £20,000,000 Of this vast sum, £8,000,000 accrue from iron, and £9,000,000 from coal

San Pedro Expedition.

The schooner Cecil, Capt. Binney, arrived at Baltimore on Monday from Cumana and St. Thomas. She brings $20,000, recovered from the wreck of the Spanish frigate San Pedro, sunk off Cumana. This is the second successfull trip of this vessel, having once before brought an equal amount from the same wreck.

Curious Fact.

A degree of latitude is equal to a degree of Fahrenheit, and 400 feet of elevation is the same. The fact though curious, is of a demonstrative character, and will go far in enabling us to ascertain facts in reference to climate.

Mechanics Mutual Protection.

This order of practical Mechanics, are about forming a Literary Institute, the members of which must belong to the order. It is intended to have debates, Lectures, Library and Laboratory connected with the Institution. The design of it is, to bring about a general intimacy among the mechanics of this city, and also, personal improvement.—Each member to take part in the exercises, and the whole business to be done by Practical Mechanics.

We shall publish a list of the officers of the Protections in this city next week—the names from three being still wanting to complete the list. This Order of Practical Mechanics, is progressing firmly throughout the United States. We have received consoling news from Protection No. 14 of Geneva, which is encouraging to hear. We hope to be able next week to have some news from the Grand Convention at Buffalo. The Grand Secretary, J. Washburn of Troy, has been very sick. R. MACFARLANE, P. G. S.

Shingle Palace.

Barnum, the proprietor of the N. Y. Museum, and the Tom Thumb man, has erected a house on the Turnpike west of Bridgeport, which exceeds all his other eccentricities. It is said to resemble Sophia's Mosque in Constantinople. It is a square building of over a 100 feet in length, and four stories high, with circular wings at the end, having piazzas to each story, filled in with lattice work. The roof and wings are surmounted by turrets and minarets, and every part of the building is covered with elaborate work.

Accident to a Professor of Chemistry.

On last Tuesday, Rev. Wm. Aldrich, professor of Chemistry in Washington College, Pennsylvania, while performing in the laboratory a very interesting experiment with the compound hydro-oxygen blowpipe, was severely injured, in consequence of the flame passing back into the tube, igniting the gases, and causing the vessel to burst into fragments, several of which, in their passage, struck Prof. Aldrich, laying him on the floor stunned, senseless, and to all appearance, lifeless. Medical help was immediately called in, who pronounced him very severely, though not dangerously wounded.

Wonderful Cave.

There is a cave in the Green Mountains which is said to be of wonderful beauty, from the dropping of crystals. It is composed of 4 compartments; the outer one being in the form of an Ellipse, 53 feet by 37 and 16 feet in height; the second compartment is somewhat smaller than the first and of a more irregular form, and so also is the third; the fourth is the grand hall of a circular form, the diameter of which is 321 feet, overarched by a magnificent dome, the extreme height of which apparently exceeds the diameter of the floor; the walls are composed of brilliant iron ore, and the light of torches reflected in a thousand hues lighting the whole with the brightness of a Summer's day.

Free Navigation of the St. Lawrence.

On Monday night the House of Assembly of Canada passed an address to her Majesty, that the free navigation of the St. Lawrence be granted to them; and also that the Navigation laws be repealed, or at least modified, so far as regards this colony. There were 59 ayes, and only two dissenting voices, Messrs. Aylwin and Ermatinger.

Shipment of Bread Stuffs.

15,000,000 bushels of corn, 2,700,000 bushels of wheat, and 2,500,000 barrels of flour—the whole valued at $33,000,000—have been shipped this season to Great Britain and Ireland alone.

An Earthquake at Glen's Falls.

The *Republican* states that on Friday morning the 9th inst. a severe shock of an earthquake was felt in several towns in that county, the effects of which extended for fifty miles distant.

Home Manufacture for Foreign Use.

Messrs. Knapp & Totten, of Pittsburg have been largely engaged during the past year in casting canon, shot and shells for the U. S. Government Mr. Jesse Marden, of this city, has a machine for casting bullets, which can be made to manufacture from one to two thousand rifle balls per minute.

LATE FROM MEXICO.

Santa Anna was about sending a number of the American prisoners from the City of Mexico to Acapulco, on the Pacific. It was rumored at Camargo and Matamoras that Urrea was in the neighborhood with a strong Guerilla force ready to fall upon the trains. The news from Santa Fe was exciting. Fears were entertained that the Mexican inhabitants would rise and butcher all the Americans—so deep is their hatred towards them. There had been an engagement between Major Edmonston and the Taos Indians, the latter claiming the victory. There were but few killed. The Camanche Indians were very troublesome.

The Sun and Moon in Danger.

A letter written from china, and addressed to a person in the city of Nantes, in France, by a French Missionary, states that several captains of vessels, belonging to the marine of the three nations, of France, England, and the United States, had been received into the presence of the Emperor of Japan, from whom they had solicited the opening the ports of his kingdom to the commerce of Europe and America. We'll next hear of the august person of the celestial Emporer of the Sun and Moon, himself, being contaminated by contact with outside barbarians. Trade and commerce are, indeed, great levellers.

Interesting Geological Discoveries.

The *Journal des Debats* publishes the following letter, dated Odessa, the 4th inst.—"The Counsellor of State, Erdmann, Professor of Geology at the Imperial University of Dorpat, who at this moment is travelling in the south of Russia, has discovered in a property situated to the north of Odessa, several skeletons of fossil animals of enormous dimensions. The skeletons are 83 in number, viz: 6 elephants, 1 rhinoceros, 2 oxen, 4 stags, 1 antelope, 61 bears, 2 hyenas, 2 dogs, 3 cats, and a ruminating animal, species unknown. Those skeletons, together with the bones, were found under a thick layer of calcareous earth. The discovery made by M. Erdmann is the more remarkable, as hitherto there never have been any remains of the antediluvian animal reign discovered in Russia."

Scientific Examination of the Potato Disease.

The French Government has ordered that scientific men in all the departments shall examine microscopically every fortnight, the growing potatoes in the several districts, with a view to discover if the plant be again tainted and the cause, if such a calamity again arise.

Charles Murray Nairne, a Scotch Clergyman—one of the most profound and accomplished schollars of the age—an intimate friend and associate of the late Dr. Chalmers, was on Monday evening last, initated as a member of the Mutual Alliance Division No. 130 of the Sons of Temperance, of Albany.

It is stated that a young lady, who is a great admirer of Gen. Taylor's epistolary style, received a letter the other day from a sweetheart enquiring if she would have him. She immediately sent him in reply, General Taylor's answer to Santa Anna, "Come and take me."

The Galveston, Texas, News, estimates that the quantity of sugar which will be made in Brazoria county alone this year, will not fall much short of 2000 hogsheads The quantity raised in the whole state last year was but little over 200 hogsheads

Charles Ellett, Esq. has been selected as engineer of the the wire suspension bridge over the Ohio, at Wheeling. This will be the largest structure of the kind in the world, being a span of upwards of 1000 feet, whereas that of Friburg in Europe, the largest now in existence, is but 800 feet span.

A law was enacted at the last session of the New Hampshire Legislature, establishing ten hours as a day's work.

© 1847 SCIENTIFIC AMERICIAN, INC

THE BROKEN HEART.

A BALLAD.

The sun may rise and shed his light
As he was wont to dae;
And a' around look smiling bright—
I cannot mair look gay.
Oh, Jamie, ye've deceived this heart
That was sea leal to thee,
Your fause, fause looks and flatterin' airt
Have left me—but to dee.

Ye tauld me, and ye sware it too,
Ye lov'd na one but me;
And often hae ye pledged your faith
Beneath the trystin' tree.
The holy moon alane was by,
To hear the vows ye made;—
Ah! had she seen their falsity,
She wad hae veiled her head.

And if I've done a deed o' guilt,
'Twas in the lovin' thee,
My guiltless heart was a' your ain—
'Twas a' I had to gie.
And yet I dinna wish it back,
For 'twas a worthless thing:
'Twas hardly worth a proud man's while
So poor a heart to wring.

E'en let it lie, like rude torn flower,
A trampled, wither'd blight.
Where a' may see its shame and fa'—
'Twill soon be hid in night.
I'll tak' me to some lonely spot,
Where man may never be;—
Where moon and stars alone may mark
Thy Annie's closen e'e.

The Way to Grow Big.

A little fellow from the country called on a gunsmith in Beaver street, Albany, a short time since, and wished to know where he might get enlisted, as he was mighty patriotic. The gunsmith told him that he had just come to the right shop and that he would measure him to see if he was the full height. The little fellow strutted his head as high as possible, brushed up his hair, and raised his heels. All to no purpose, however, he was an inch too short and could not be taken. The little fellow looked sorry and the gunsmith appreciating the value of his services against the Mexicans, told him that he knew a method—an operation—which if he went through, would soon raise him to the required standard. The plan he said was by the simple efficacy of manure, so excellent for *raising* crops, of which if he put a good layer into his boots and walked a couple of hours in the sun, he would come up to the soldier's mark. No sooner said than done. The little fellow sprung off shouting *capital idea*, and in half an hour he was seen in the same street beneath a broiling sun marching backwards and forwards, his patriotism being enlivened by three several measurements of the gunsmith in the course of an hour, who pronounced an increase of height three-eights of an inch. In two hours and a half the intended soldier would have gained his point, but alas, for fate, the best laid plans of mice and men go oft agee," for a number of people at last began to take notice of him and the joke leaking out, the would-be-soldier saw a snicker and a sneer on every face, and taking the hint started off up past the little Basin amid the laughter of a considerable crowd, a substantial illustration without any fiction, of the wonderful effects of Albany Guano.

Motion of Comets.

If comets, like planets, revolved round the sun in nearly a circular orbit, they might be seen in their path and their identity thus established. But they don't. They rush from some far removed point in space into our system, in a straight line towards our sun. As they approach they make a curved path, rounding out generally from the sun, and then rush out of our sphere in a straight line.

Abbot Lawrence has given $1000 to the Lawrence Library Association, at the new city of Lawrence, Mass. This gentleman evidently understands the true secret of success; that an intelligent community will produce the greatest dividends, with the least labor to the employer, and that nothing can create one so soon as libraries, and institutions made directly for the elevation of the masses. We wish there were more Abbot Lawrences.

A Curious Race in Georgia.

We may talk as we like about Chinese and Indians but the following description will shew that there are as queer folks in the States as out of them. The poor white population of Georgia are very poor and very ignorant Very few of them can either read or write, and are loth to improve their condition. They abhor labor, and will only work just so much as to obtain a mere subsistence. They will take possession of any land unoccupied, which suits their fancy, without knowing or caring to whom it belongs—erect a cabin—plant a few acres of Indian corn, and a little patch of cotton to make their own cloth, and with a few pigs, a cow or two, a mule or horse, manage to bring up a large family in the same ignorance with themselves. When they get tired of living in one place, or have exhausted the soil of the few acres they have cultivated, they pack all their moveables into a one horse cart, and move to another country. Their ancestors are said to be Highland Scotch, who first settled the Western part of North Carolina; thence they have gradually worked their way into Georgia, and have commenced invading Alabama They have no objections to working in cotton factories, and are employed in the factories which are now in operation in Georgia, and make much better operatives than the slaves—but agricultural labor they consider nigger's work. If they are generally good-natured, inoffensive people, they have a great deal of pride and independence of character, with all their poverty and ignorance. They scorn to tell a lie or steal; but vindictive and revengeful when insulted or injured, and will not hesitate to shoot a man behind his back to revenge an injury or an insult. Their implements of husbandry are of the most rude construction. Their plows are such as we might imagine were used in scriptural times, being three stick sput together in the form of a triangle, the hypothenuse forming the handle—the point at the sharp angle being shod with iron, much in the shape of a mason's trowel and not much larger.

Wonders of Nature.

"In the leaves of every forest, in the flowers of every garden, in the waters of every rivulet, there are worlds teeming with life, and numberless as are the glories of the firmament."—[*Rev. Dr. Chalmers.*

Sir John Herschel, in an "Essay on the Power of the Telescope to penerate into space,' a quality distinct from the magnifying power, informs us that there are stars so infinitely remote as to be situated at the distance of *twelve millions of millions of millions of miles* from our earth; so that light, which travels with a velocity of twelve millions of miles in a minute, would require *two millions of years* for its transit from those distant orbs to our own; while the astronomer who should record the aspect or mutations of such a star, would be relating, not its history at the present day, *but that which took place two millions of years gone by.* And, when we reflect that if it were possible to attain to those distant spheres, we should look, not on the limits, the blank wall of creation, but only into *fresh* fields of Creation, Power, and Wisdom, we feel that our earth and all that it inherits is a mere speck in space, an atom amid the vast Universe.

Nothing more perfectly demonstrates the power of Nature to effect her vast designs though apparently feeble and insufficient agents, than the coral formation. It requires, indeed, ocular proofs, of the labors of the madepores, to credit what stupendous submarine reefs and islands, many miles in compass are indebted for at least a great portion of their structure to the secretotory economy of these minute artificers.

Serpents have lungs, and a single heart, and cold blood, but no jointed members, with a brain and skeleton.

Reptiles have lungs, and joined or divided members, but a single heart and cold blood, with a brain and cartilaginous skeleton.

Mammalia have a double heart and warm blood, with an internal bony skeleton and brain, and suckle their young.

Birds have the same, but do not suckle their young.

Light.

Light travels at the rate of twelve millions of miles in a minute; if, therefore, its particles were not proportionably minute, it would batter the hardest bodies to atoms. The density of the sun's rays at the earth is such that the number collected upon a burning glass an inch only in diameter, is sufficient when concentrated, to set wood on fire. By the present composition of light, we have that variety of colors which is of infinite use to us for distinguishing of objects, which adds to the beauty of the earth, and augments the stock of our innocent pleasures. With respect to the reflection of light: if we had the power of seeing only by means of rays coming directly from the sun, whenever we turned our backs upon that luminary we should be in darkness. The world can only be enlightened by the light of the sun being from all sides, and on every direction, reflected to the eye by particles as widely diffused as those of air.

The Sun.

The centre of our system, that glorious orb "kindled by God on the morn of creation to cheer the dark abyss and to pour his radiance on surrounding worlds," is 886,000 miles in diameter, and five hundred times larger than the aggregate of all other parts of the system, and moves in space with a velocity of 28,000 miles an hour. Mercury, the nearest planet, is distant from the sun, 37,000,000 of miles; its diameter is 3000 miles; its hourly motion in its orbit 95,000. Venus is 69,000,000 miles distant, nearly 8000 in diameter, and moves 75,000 per hour. The Earth is 95,000,000 miles distant, 8000 diameter, and moves 68,000 per hour. Mars is 145,000,000 miles distant, upwards of 4000 diameter, and moves 55,000 per hour. Jupiter is 495,000,000 miles distant, 90,000 diameter, and moves 30,000 per hour. Saturn is 900,000,000 miles distant, 80,000 diameter, and moves 22,000 per hour. Herschel or Uranus is 1,800,000,000 miles distant, 35,000 diameter, and moves 15,000 per hour These distances being graduated by mathematical law, the new planet Neptune or Le Verrier is found to be 1,800,000,000 miles distant from Uranns, thus by its addition doubling the radius and consequently the diameter of the Solar system, and making them respectively 3,600,000.000 and 7,200,000,000 of miles.

Now if we look at that sublime law, by which the two forces that appertain to these worlds are exactly balanced, and find them all moving on in harmony in their orbits and still sustained, together with their sustaining center, as the whole solar system moves on in its vast orbit around some far distant central sun, yet as a *part only* of myriad systems, forming one great whole, to us inconceivably vast; if we find all controlled by immutable law, and still more, if we cannot believe these worlds to be barren wastes, but inhabited by immortal beings, and that this grand whole is pervaded by moral affinity, this subject has sublimity which no seraph can measure.

A Curious Discovery in Natural History.

There was lately discovered in opening a quarry at the Island of Grand Canary, the skeleton of an enormous Dog, in a good state of preservation. It was purchased by the Consular Agent of France, and sent to the Museum of Natural History at Paris. It is an object of the greatest interest to science, from the fact that it belongs to that enormous race of dogs which, according to Pliny, gave the name to the Canaries, and which for some centuries have disappeared from the face of the Globe.

Chalk and Coal Fires.

The practical utility of Chalk as an article of fuel, has been tested within the last few weeks, according to a Salisbury (Eng.) paper, and with the most satisfactory results. Surrounded with coal, it gives a strong heat and clear fire, at half the usual expense; so that to the poor, in the chalk districts, it must be an incalculable boon. The first experiment with chalk was made last year. It must first be heated to a great degree before its qualities of pouring out heat are displayed. When it becomes red hot it retains heat longer than coal.

Never tell a woman she is not handsome unless you are fond of hearing music.

Beneficial Effects of Ventilation.

This air-pump (Dr. Arnott's doubl e acting air pump,) was used on board the Anson, formerly a seventy-four gun ship, which last year carried out to Australia 500 convicts—a larger number than the government had ever before ventured to send in one vessel. There were in addition 300 troops and the crew, in all about 1000 persons. The apparatus was worked by one lad; and it was reported that about three times more air was driven in by the four wheeled ventilator commonly used. and which required eight men to work it. Only one person, and that an old epileptic, died on the passage. All the others enjoyed singular health during the voyage; and it was remarked when they were landed, that they had fresh complexions, very unlike what was observed in ordinary cases.

The Discoverer of the Drummond Light.

Mr Charles Cameron, of Edinburgh, in a recent letter proves a priority in the discovery of the Oxy-hydrogen Gas Light. He says that in 1818 while visiting some calico print works in the neighborhood of Glasgow, he observed wooden bleaching vessels were bleached as white as the goods and had lost all the appearance of wood. From the singularity of the wood, he cut a few slips from the edges of the vessels and having dried them held one to a gas light. and was struck with the brilliancy of the light. He was made sensible that lime was the cause of this, as it was the chloride which was used for bleaching, and having made an experiment with pure lime, he became satisfied of this thoroughly. He mentioned this to Sir David Brewster, who also tried the experiment with some of Mr. Cameron's chips and then published an account of the same in the Edinburgh Philosophical Journal. It was after this, while Lieut. Drummond was making a trigonomical survey of Scotland, that he applied the blow-pipe to the lime, and so got the name of the discoverer, but Mr. Cameron's discovery had been before the public previous to this.

Lamp and Candle Flame.

The flame if a lamp or candle is nothing but gas heated to whiteness, caused by the combustion of the volatile matter contained in the oil or tallow. The wick serves to convey the oily liquid, by capillary attraction up to the source of heat, where it is boiled and converted into vapor, and being of less specific gravity than the atmosphere, ascends into a column and combines with the oxygen of the surrounding atmosphere, developes heat, communicates with the surrounding current of gas and instantly becomes luminous. A wick is by no means necessary for the production of flame, though it greatly facilitates the conversion of the volatile matter into vapor.

The Mexican Plough.

Mr. Gregg, who has travelled extensively in Sante Fee and Northern Mexico, says the ploughing is done altogether by oxen, and the agricultural tools are very rude; their ploughs, hoes and axes would be as great a curiosity in this country as Santa Anna's wooden leg. The plough is altogether of wood and is attached to the horns of the oxen. The laborers are generally slaves for debt. He had heard of a Yankee plough introduced in Mexico, but an inquisition was held over it,—the wood was condemed to be burnt and the iron to be thrown into the river,

Archimedes.

Archimedes was a famous geometrecian of Syracuse. When the Romans beseiged that city, he constructed machines which sunk some of their ships, and others he set on fire with burning glasses, or reflectors made of metal which produced the same effect. When the Romans entered the city, Archimedes was found by a soldier, poring over some figures which he had drawn in the sand He begged the Roman to spare his circles but the man heedless of his request, rushed forward and killed him with a blow. He was 75 years old, dying 212 years B. C. He is said to have declared he could move the globe if he only had a place to stand upon.

Cure for Deafness.

It is stated in the U. S. Gazette that if pure honey be poured into the ear it has a wonderful effect in relieving deafness.

© 1847 SCIENTIFIC AMERICIAN, INC

NEW INVENTIONS.

Improved Passenger Car.

Mr. Stowell, Superintendent of the Norwich and Worcester Railroad, has had a new passenger car constructed under his direction, with accommodations for 80 passengers. The seats are fitted up in a most comfortable and elegant style, and the great improvement consists in the manner of their construction, whereby passengers can go to sleep as quietly as sitting in a parlor on a rocking chair,—the seats being so swung as to destroy much of the jarring and jerking experienced on the very best of our railroads. We have not as yet been informed of the precise manner of their construction, but to sleep and travel on the railroad must be the very achme of modern commercial enthusia.

Bee Hive.

A gentleman in Norwich, Ct., has made some improvement in the Bee Hive, which is said to be very beneficial. It is of the usual form, but closed at the bottom, with a close fitting lid, covered with wire cloth, about 8 meshes to the inch. This allows all the dirt and chips of comb made by the bees to sift through; and admits sufficient air for ventilation It is hung on butts, and can be opened, to brush off any dead bees, or other substance too large to fall through the wire. Near the top, directly over the drawers, is an inch auger hole, for the passage of the "workers." This aperture, being at the top of the swarm, has always a cluster of busy bees about it, so tnat no miller can enter; and there is no other mode of ingress, Nothing larger than ants can go through the wire bottom; and they are easily kept away by salt.

New Wagon Springs.

A mechanic in Bucks Co Pa., has constructed a wagon hung upon invisible spiral springs which promises to be a great improvement in comfort and economy. It is said to be easy and graceful in motion, especially in crossing gullies or rough ground—it having more the motion of a light boat in gliding over the waves, than a vehicle upon wheels. The springs are made of brass wire, (iron wire is better if galvanized,) and though weighing only four pounds will carry a load of a quarter of a ton, and can easily be varied in size to support any weight desired. There is also connected with them, an invention to prevent the carriage wheel touching the body in turning, which is also a great improvement. Measures, we understand are in progress for securing a patent for this invention.

India Rubber Springs for Carriages.

Mr. B. F. Ray, of this city, has invented springs for Railroad Carriages made of Goodyear's prepared india rubber. They are said to be more economical and durable than iron springs, combining strength with elasticity.

Blast Lathe.

A gentleman in New Orleans named Peoples has invented a Lathe which can turn out masts and spars with great rapidity. The machine in represented to take out all the bendings with great nicety by cutters. We presume that it must be upon the principle of Blanchard's pattern gearing.

New Boiler Feeder.

Mr. T. D. Stetson, of Kingston, Mass., proposes to adopt a new method for opening and closing the passages of a boiler and cistern by means of a smooth rod or sliding plate, acting upon coiled springs, which alternately open one passage and shuts another more easy, he claims, by the springs and sliding on the rod, than by a lifting float.

New Spring Awl.

We have been informed that an Awl for pegging boots and shoes has been invented in this city, which when it reaches the proper depth in the leather, comes out speedily of itself by means of a spring.

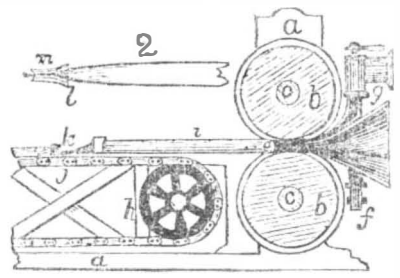
Hedge's Corn Sheller.

One of them machines recently erected in St Louis, when turned by hand, shelled and cleaned half a bushel in twelve seconds. With one horse, and two men, one to feed the hopper, and the other to attach the empty casks and detach the full ones, a machine which costs only fifty or sixty dollars, will shell and clean it is said 1000 bushels a day!

Wrought Iron Tube Machine.

This invention relates to the manufacture of welded wrought iron tubes, the novelty of which consists in forming flat pieces of wrought iron, with chamfered edges, into tubes with over-lap joints for which purpose there is employed, during the closing the seam or joint, a hot and cold blast apparatus applied between the rolls directly upon the seam or joint to be welded, these seams by the intervention of a mandril placed inside the partly formed tube, vertically between the pinch of the two rolls, cause the seam or joint (which is kept by the blast apparatus in a fusible state) to be welded together by the external pressure of the rolls aforesaid, the engravings 1, 2, 3, 4, represent parts of the machine in section Fig. 1, is a vertical side section on a

Fig. 1.



small scale, the same letters of reference applying in each case to suitable corresponding parts. A A, are standard frames; B B, are the rolls shown in section C C, the shafts on which they revolve, the periphery of which are semi-circular, so that when placed together they form a circle through which the tube passes during its formation; D D, represents the mouth of the moulding tube attached to the standard A, by means of the fixture F; L is a circular mandril or core fitting the inside of the manufactured tube for the purpose of closing the seam by the external pressure of the rolls; G, is the hot and cold blast apparatus worked by steam or other suitable contrivances; H, is an endless chain wheel to which motive power is applied; I, is a portion of the newly finished tube, constructed according to this invention; J, is the endless chain passing over two pulley wheels at each end of the drawing bench; K, is a fastening claw or clutch, linked to the chain J, with which it travels at the same surface speed as the rolls L L. Fig. 2 represents a plan view of a skelp or bar of iron, before it is converted into a tube, the first process being to bend it in the manner seen at L, to enable the clutch to take hold of it; M, is the clutch, which is formed for holding or nipping the end of the skelp, that the tighter it is pulled, the tighter it holds these bars of iron—so held, being of various sizes, widths and thickness, having bevelled or chamfered edges are placed in a furnace, and there kept until at a welding heat; they are then placed in a mouth piece or funnel-shaped tube, through which it is drawn by the endless chain in connection with the draw-bench, until finished.

Fig. 3. Fig. 4

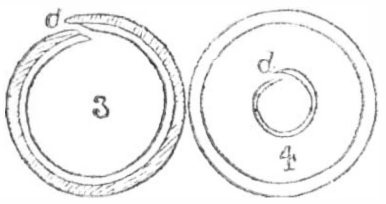


Fig. 3, represents an enlarged transverse section of a wrought iron tube, with an overlap joint D; and Fig. 4, a plan view of the mouth-piece before described.

It is claimed for this invention: the mode of using either hot or cold blasts acting upon the metal, to be joined during the welding of the seam or joint of the tubes aforesaid; and, secondly, for the mode of constructing the rolls with one flange on each of the ends of the bottom rolls, and the top roll fitting on and adjusting themselves when screwed down.—And, thirdly, for the combination of the machine, so as to produce a welded iron lap-joint tube by one heat, wheel a mandril is placed in the inside of the tube, capable of giving sufficient internal support; and lastly, for the method of taking or pulling large skelps out of the fire or furnace in a particular manner The inventor is James Rose, of Stafford, England. We are not informed that any patent has been taken out in this country for a similar invention.

Harpoons, &c.

A correspondent asks if there is any other method used for capturing whales than the common lance or harpoon, and whether there has been any application of explosive materials in the whale fishery In answer we have to state that three patents were granted last year, two for harpoons, to be used in the ordinary way, and one for a whaler's bomb lance, to be projected by gunpowder. Both of the harpoons have double flukes. In one of them the upper or auxilliary flukes revolve upon the shank; and after the harpoon has entered the whale, its drawing will be resisted by primary and auxillary points at different points, and of course its hold will be much firmer than that of the ordinary harpoon. In the other harpoon the auxillary flukes are jointed near the shank to the ordinary flukes, with a firm support in addition to the joint pin. When the harpoon is entering the whale the auxilliary flukes lie close to the shaft; but when any draught comes upon it the flukes spread far wider than those of the ordinary harpoon, and take a much firmer hold. The patentees of these harpoons are Holmes & West, Tisbury, Mass. and Charles Randall, Palmyra, Georgia. The bomb lance was patented by Oliver Allen of Norwich, Conn. It is constructed as follows: A hollow metallic tube is made, capable of containing a considerable charge of powder. The point of the lance has a shank at its reverse, and fitting the muzzle of the tube. This shank has a shoulder to prevent it entering the muzzle too far. At the opposite end of the tube there is connected to it a smaller tube containing priming. When the parts are put together, the appearance of the instrument is that of a common lance. When properly prepared, and the primer ignited, it is thrown into the whale, and the explosion of the powder sends the point of the lance, like a ball, further into him.

Musical Instruments.

We have received a communication from one of our correspondents, stating that his attention was directed to our answers to correspondents in the Scientific American of the 19th June, in relation to the use and superiority of five strings for the Violin instead of four. He says that his attention was directed to the subject in 1836, when a pupil of Prof. Mott, of Quebec, Canada, and at that time from the difficulty of learning the shifts, it occurred to him that five strings might be a great improvement over the four. He had a fine silver wire drawn for the purpose, and also a violin made, but it would not answer, neither would the best Italian E string last longer than 30 minutes. But while the Italian string lasted, he was conscious of a great advantage. He believes that if a proper string could be made for a fifth string, a wonderful improvement in tone and facility for execution would be the result, and such was the opinion, he says, of every person who heard him perform. Those who might be desirous to communicate with our correspondent, will get his address by calling at our office.

New Style of Carpets.

Mr. Whitlock near Edinburgh, Scotland, has invented a process whereby Brussels, and Wilton, and other expensive kinds of carpets, are made much cheaper than heretofore, while the same time, a more durable article is produced, and the most gorgeous patterns introduced, with scarcely any limitation of colors. At one factory there are two hundred looms at work on this principle. The principle is said to be in printing first the yarn and weaving it by a mathematically correct pattern soon after the pattern of the print. The least bagging in the warp or weft therefore will spoil the beauty of the web.

Sailing Trunk.

Captain William Adams left Wilmington, it seems a short time since, in what is called a "passenger gum elastic sea-safety trunk," bound to Philadelphia, with provisions sufficient for a voyage of three days. The trunk is 38 inches long by about 29 inches deep and as many deep. It was once written that the "three wise men of Gotham went to sea in a bowl," but what shall be the end of this.

Railway Speed Measurer.

M. Ricardo has invented a machine for the measurement of the Locomotive speed and which has been tested on the London and Brightan Railway with some success. The principle on which its arrangement proceeds, is that of the centrifugal force, as employed in the common steam engine governor. In order to render that machine available for the purpose of increasing the velocity of a train, a wheel is mounted on the revolutionary axle of any of the carriages, and is made to revolve in contact with another wheel of the same diameter, placed within the carriage. This interior wheel carries a pulley, about which an endless rope is passed. By means of this cord the vertical shaft of the governor is made to rotate about its axis, and the balls, as they rise by virtue of this centrifugal tendency, elevate upon the shaft a moveable sole, to which is attached an upright slender metalic rod, caused to ascend and descend with a vertical line by means of eyes. The upper end of the rod is made fast to a second but much smaller endless cord passing round two small pulleys.

One of the pulleys is carried upon an arbor to which an index is affixed, and this index by revolving upon the face of a dial plate, graduated at its circumferance according to a mathematical formula, represents miles, per hour, the speed at which the train is moving. A double slip of vulcanized india rubber is used to counteract the rapidity with which the balls would otherwise raise the upright rod, and which would necessarily occasion a very small range of scale upon the dial. The effect of this arrangement is that the whole of the circumference of the dial is brought into graduation, and made to indicate the slightest alteration of velocity, up to 70 or 80 miles per hour. It is altogether different from another machine invented last year by the same gentleman, which registered the velocity, and exhibited the intervals during which the train was running from station to station, and those also during which it was stationary, at the station, and is exceedingly simple in its construction.

New Life-Buoy.

A highly interesting experiment has been made at Portsmouth, in the presence of Admiral Sir Charles Ogle, and other distinguished officers, of a new life-buoy invented by Lieut. Irvine, which, beside its properties as an infalliable agent in the saving of life at sea, possesses also the uses of a trunk or sea-chest in which may be stowed, without the possibility of the approach of wet, such matters as bread or other dry provisions, linen, ammunition, &c.

Fire Clay Alum.

Mr. J. Cliff, of Worly, England, has discovered a method of making alum out of fire clay. He first takes the fire clay and grinds it, then he submits it to the action of muriatic or sulphuric acid and then by lixivating the mass by water obtains the alumina in solution and set free from iron by means of the prussiate of potash, or sulphurated hydrogen, and then evaporates the solution and gets the muriate or sulphate of alumina. He then mixes it with sal ammonia or soda, evaporates and crystalizes so as to obtain the alum salt.

Nitra Sulphate of Iron for Calico Printing.

We see it reported in some of the papers that a chemist in England has much improved the sulphate of iron for calico printing, by fusing it along with the nitrate of potass. We believe that a solution of sulphate of iron and the acetate of lead is better for calico printing than the nitro sulphate of iron

Atmospheric Tides.

It has been proven, by a long series of experiments at St. Helena, by Col. Sabine, of the British Army, that the air has the same tides, which have their flux and efflux, which occur at the same times and are produced by the same causes that produce the tides of the ocean. This has existed as a hypothetical fact ever since the theory was developed of the sun and moon being the prime agents in causing the ocean tides.

The nations of the earth most distinguished for civilization, are the most famous for mechanical knowledge.

© 1847 SCIENTIFIC AMERICIAN, INC

NEW YORK, JULY 31, 1847.

Mental Developement.

Civilization is a progressive work—there is no standing still—its principle is continual advancement. The nation that ceases to go forward must certainly go back. When Rome lost her virtue, she soon lost her power and with her loss of power soon came the night of her Gothic darkness. The use of history, is to teach us upon what rocks and shoals nations and men have been wrecked, so that we may avoid the evils which have always resulted by a deviation from those principles which in all ages have exalted man. If we wish to be good we must be virtuous. If we desire to be noble, we must be generous. If we wish to be great, we must be energetic, and if we wish to be great, good and powerful, we must be virtuous, industrious and just. The most proper direction, therefore, of the mental faculties must be towards some object or objects for the good of man. If there is a continual reaching of the mind to grasp some new idea, unless it studies the consequences as well as the mere discovery, the most important endowment of the soul's power has been led astray in search of an imaginary foible—a foible for earthly fame or selfish aggrandisement.—The man who merely studies for a great name or to invent something that shall make him rich, may well be lauded for some successful scheme, but surely not for his motives. Every action ought to spring from upright motives. When the fountain is pure the water will be sweet. Therefore in the mental developement of the rising generation, the principal object should be virtue for the moral guidance and the acquirement of useful, practical knowledge before attention is paid to mere elegance. The children of our farmers should be taught the principles of agriculture and the children of our mechanics the principles that govern the mechanic arts. There is a wide field for mental expansion in every department of science, and unless the children exceed the parents, we surely cannot expect to be making advancements in civilization, but if there is a direct and positive attention paid to the right education of the rising generation, may we not justly expect that our children will surpass their parents, and if there is not, they will certainly fall far behind.—Every mechanic ought to learn his son to draw before he would learn him to dance or sing, and mathematics in preference to Latin. Every chemist, dyer or painter should learn his son chemistry in preference to any elegant study, music or poetry's charms, and if after having acquired the useful, in fact the positive instruction for an industrious life, he finds that he has time still to acquire more, but less practical information, then he may do so, but the mind should first be directed to the useful before the ornamental. This much we have said in regard to mental developement knowing that if the rising minds of our people progress, our country must—our people is our country. We have thrown out these few hints directed to our mechanic fathers, and our mechanic youth. We would sincerely desire to see our apprentices spending their spare moments in acquiring useful information regarding their several occupations, for we are sorry to say that there is too much ignorance of the very principles with which they ought best to be acquainted. Let them keep good company, use pure language and study for the benefit of man, and we may then expect to see a mental developement in the rising generation which will carry our country forward in the career of civilization with a wing as strong as the eagle's of our mountains.

The Gulf of Mexico covers a much larger space than many persons suppose. It extends north and south about 600 miles, and east and west about 750. From Alvarado, in Mexico, to Pensacola, Florida, is about 1100 miles. It exceeds in dimensions all the fresh water lakes on the globe taken together.

Uniformity in the Universe.

One principle of gravitation causes a stone to drop towards the earth, and the moon to wheel around. One law of attraction carries all the planets about the sun. New countries are continually discovered, but the old laws of nature are always found in them, new plants or animals, but always in company with plants and animals which we already know, and always possessing many of the same general properties. The same order of things attends us wherever we go. One atmosphere invests all parts of the globe; one sun illuminates; one moon exerts its specific attraction upon all parts. Of all large terrestrial animals the structure is alike; their senses nearly the same their natural functions and passions also nearly the same. Digestion, nutrition, circulation, secretion, go on in a similar manner in all. Water and earth are connected by a species of animals that inhabits both, and also by a large tube of equatic animals, which closely resemble the terrestrial in the internal structure, viz. the cataceous tribe who have hot blood, respiring lungs, bowels, &c., like those of land animals. This similitude surely bespeaks the same creation and the same creator.

Middletown, Ct. Manufactures.

Middletown contains 6000 inhabitants. Its location is upon a gentle declivity commanding a beautiful view of the winding river and the more beautiful valley stretching far away to the blue eastern hills. There is a Methodist college located there which is in a prosperous condition, and schools of a high character for the education of both sexes abound.

The advantages for manufacturing are fine The water privileges are good. The manufacturing establishments are woolen, button and comb, plane, screw and knob, webbing, gun and pistol factories, a steam flour mill, &c.—Just across the river, and within two stones throw of the bridge location are the famous Sandstone Quarries teeming with workmen, who are continually employed in getting out stone which is sent North, South, East and West.

Carbonic Gas

The volume or bulk of carbonic acid gas expired by a healthy adult in twenty-four hours, it is said to amount to 15,000 cubic inches, containing about *six ounces* of solid carbon. This is at the rate of 137 pounds avoirdupois per annum; and taking the total population of the globe at seven hundred and sixty million, the amount of solid carbon or charcoal every year produced by the human race, exceeds 46,483,143 tuns! Adding to this all the carbon produced by the combustion of fires and gas-lights, by the decay of animal and vegetable matter, the exhaltations from springs, etc., there need be no marvel as the source whence plants derive their solid or woody material, (which is principally carbon,) seeing that their leaves are especially fitted for the absorption of carbonic and acid gas from the surrounding atmosphere.

Western Railroad.

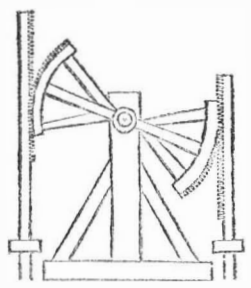
The amount of travel upon this great thoroughfare at the present time supasses that of any former period of its history. The passenger cars are filled to repletion daily—The immense freighting business of the road also continues without abatement, taxing to the utmost the unrivalled facilities of transportation, which have recently been enlarged by the addition of more cars. The work of grading for a 2d track is now going on along the whole line from Springfield to Worcester, and the increase of business will probably ere long demonstrate the necessity of another track from Springfield to Albany. The income of the road exhibits a large weekly increase over the amount of corresponding periods of last year, when the gross receipts were $952,000—The gain of the first six months of the present financal year, amounts to $111,000, which if continued in like manner through the year will swell the receipts of the last year to more than $1,200,000.

Locusts.

The seventeen year locusts have made their appearance in immense numbers in the Western part of North Carolina. Seventeen years ago they visited the same place.

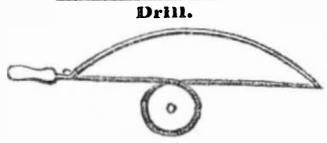
MECHANICAL MOVEMENTS.

Arch Head.



The above is a representation of a beam operating upon a rack and as shown before in the manner of pile driving machines and by operating on stampers. In the present case it is one of the many ways employed for the purpose of stamping. This engraving, however, gives a full idea of the method employed by Watt for connecting the motion of the piston with that of the beam, solving thereby one of the most elegant mechanical problems. The piston here moves in the arc of a circle, yet by the arrangement of the rack shaft and the arch head, while the arch head moves in the arc no sensible deviation from a straight line is communicated to the rack. This method of communicating motion is very objectionable, it is rough and liable to wear. A A chain communicating with a rod or a wiper is far superior to the rack teeth.

Drill.



To drill holes in iron or wood by the hand drill, is a slow and not very easy task, and to relieve such labor it is no wonder that attention was early devoted to this subject. The above simple machine is well known to every mechanic, and without its aid the mechanic who has too little business for a lathe would just feel as incompetent to perform the little which he has to do, as they would in a large shop where there is much heavy drilling.—The bow-string is here used to much better purpose in drilling a gun stock, than it possibly ever was by Sultan or Pacha. The drill has a large drum head in which there is a groove. The string is warped in the groove, and the mechanic applying the point of the drill to the place where he wishes the hole bored saws away like a fiddler and finishes his tune when the hole is bored to the required depth. It is used mostly in drilling wood and is a very old instrument. Horizontal and circular motion are here combined.

Exploring Expedition.

Drs. Owen and Norwood, with several gentlemen are now exploring the regions near Lake Superior and the sources of the Mississippi. They are to make the necessary geological and other scientific explorations of the Government lands there, prior to bringing them into market. The region is said to abound in copper and other minerals They will be absent about five months on this scientific tour, and we shall look with interest to the result of their researches and observations in that valuable district. The previous reports of Dr. Owen have commanded profound attention among learned men, and been of great practical benefit to the Government. Dr. Norwood, who is associated with him in this scientific tour, is a gentleman well qualified for the task. A party of surveyors will be sent to run the principal meridian from the Illinois boundary to Lake Superior

The Oregon Route.

Congress made an appropriation some time back for the erection of block houses on the Oregon trace, and Capt. Van Vleit is now on his way out. His expedition consists of five hundred mounted Missouri volunteers, with four 12-pound howitzers.

The instructions to this command are, to erect two block houses—the first, three hundred miles beyond the mouth of the Kansas river, where the Oregon trail crosses the Platte river, and the second three-hundred miles beyond the first. The expedition will be absent two years.

War Steamers.

The war steamers are authorized to to built under the late act of Congress approved March 1847, are: Two of the first class; burden, United States tonnage, 2,414 tons. Two of the second class; burden, United States tonnage, 1,379 tons,

The first class are;		
Between perpendicular	250 ft.	0 in.
Beam, extreme,	45	1
Depth, to gun-deck in hold	26	5
The second class are:		
Between perpendiculars,	210	0
Beam, extreme,	27	0
Depth to gun-deck in hold,	23	0

The two first class steamers, and one of the second class, to be propelled by side wheels, the other by a screw propellor. One of the largest class is to be built at Gosport, and one at Philadelphia: one of the second class at New York, and one at Kittery, Maine—We hope that the order for a screw propeller will be countermanded. No person can read the experiments already made between the paddle and screw without being sensible of the advertages possessed by the former.

Discovery of a New Cave.

A few weeks since, while some laborers were working in the lime quarry of Mr. Samuel Anan, of Fishkill, Dutches county, they discovered a crevice which was soon widened and an entrance effected: whereupon quite a large cave (about 50 feet in length,) exhibiting marks of former occupancy, was disclosed to their astonished eyes. Boards lying upon the bottom of the cave, and supporters to the roof, were found in a somewhat decayed state, showing evidently that they, as well as the cave, are of considerable antiquity. Pieces of rock also are said to have been taken out of the cave, exhibiting a strong resemblance to silver or lead; and its appearance warrants the belief that it was at one time, long since, occupied by human beings in some pursuit unknown.

There is a spring of water in it five or six feet deep, which is evidence that the cave is natural; and it is a singular fact, that just at the mouth of this cave is a stately elm tree, the only one in the neighborhood, suggesting the idea that it was planted there by the former discoverers, as a landmark to guide them to their treasure.

Grand Rapids Michigan.

The population exceeds somewhat 2,000 in number. The river at Grand Rapids becomes a broad and powerful stream, far exceeding in capacity the Genessee in our own State and not so subject to exceeding low stages of water, and thereby affording one of the *very best* water powers in the State or Union, if properly improved. There are upon it two flouirng millstwo foundries, and various other establishments incident to the developing resources of the mighty West.

Hon. Lucius Lyon has erected buildings for the manufacture of salt, and sunk a salt well some 700 ft. from which water is procured, which yields from 50 to 60 bushels per day by boiling and evaporation.

A full cargo of copper ore was received by the Smelting Company at Baltimore a few days ago, from the Flemington Mines, New Jersey,

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

THE
SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper, have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

TERMS.—$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper for the same length of time

© 1847 SCIENTIFIC AMERICIAN, INC

SOUTHERN CORRESPONDENCE.

Ellicott's, Harper's Ferry, Wheeling, &c.

WHEELING, VA., July 15, 1847.

From Baltimore to Wheeling is a distance of 400 miles via Pittsburg, and 300 going by the Blue Ridge Mountains. It was a beautiful morning when we left Ellicott's Mills (9 miles west of Baltimore,) on board the Cumberland cars; the country along here presents a wild romantic appearance, and to the lovers of nature, the painter, the poet, and the geologist, rich fields are presented to their study. There are three factories within two miles of each other the "Thistle," (a Scotch settlement,) the "Patapsco" and the "Union" factories—in these factories the workers are well used, and the superintendents of them respected, and the morals of the people are good. A fourth large factory is in progress of erection, the stone and wood work completed, and when put into operation, it will be one of the finest factories in Maryland—it is called the "Granite Factory." Away we went, at the sound of the whistle, and after six hours top speed of the steam Pegasus we reached Harper's Ferry. Here the grand panorama of mountain scenery commences; these towering peaks and mountain woods present a scene at once grand and imposing, unsurpassed in the United States for height and majestic appearance, so say some of our travellers. Looking to the vertex of these high precipices overhung with trees, I could not but recollect the words of Lady Randolph in Douglass—

"Ye woods and wilds whose melancholy gloom," &c.

Harper's Ferry is rather an uneven, irregular built town without either design or regard to health, and there is at some seasons of the year much sickness about it. The manufacture of muskets for the government is extensively carried on in this place. It was here two pugilists from your city fought in the spring, when a band of lawless men defied all civil restraint, becoming conductors and captains of cars and steamboats the whole route from Harper's Ferry to Philadelphia. At half past 2, we again started, and while we passed the extremity of these huge mammoth peaks a heavy thunder cloud overhung them, which bellowed away down the Potomac Valley—The railroad runs for a great distance on the banks of the Potomac River and the country here presents a general sameness for twenty or thirty miles. The river is of a serpentine form, consequently the valley is the same.—There are a great number of towns, villages and little groups of houses on the route. We reached Cumberland in the evening. This city is rapidly progressing. Iron and coal are extensively found in the mountains and great quantities of the latter are now carried on to Baltimore. This is the terminus of the Western Railway, the first in the United States, the great route by which the produce of the Western world is brought on to the eastern cities. In the Spring and Fall the cars are loaded with merchants from the West and South, making their purchases of goods in Baltimore, Philadelphia, New York and Boston. The fare from Pittsburgh to Baltimore is ten dollars. At a meeting of the stockholders of the Ohio and Baltimore Railroad Co. last week, measures were adopted to extend the line on to Wheeling, to the mouth of the Ohio river. At Cumberland we found the stages ready to receive us, and in half an hour we began to ascend the Cumberland Mountains. Travelling twelve miles we reached Frostburg, a little town at the foot of the far famed Alleghany Mountains; here we alighted and took supper, and I had the privilege of having the first black tea served out to me in this country, but it was too sharp for my nerves. We now began to face the first steep of the Allegheny heights, and suffice it to say, those who are partial to staging require only to cross these mountains to get their fill of it. The horses are kept in good condition, the stages clean and well fitted up, but such jostling, shaking, bouncing, internal twitching I never felt, enough to grind a hole in a fellow's shirt with his shoulder bone, and there are a few other disagreeables which I cannot here describe. We crossed the mountains during the night, at times the full moon shone with splendor over their dark extending outlines, all above clear and beautiful; at other times the rain poured heavily upon us. At 7 o'clock in the morning we reached Uniontown, at the other side of the mountains, having been 12 or 13 hours crossing them, and here took a good breakfast sharpened by the mountain breeze. I have no time to say more at present. Yours, &c.

BRAMBLE BRAE.

The Perils of Mining.

A remark in No. 42 of the Scientific American regarding the common windlass struck me so forcibly, that I send you the account of an accident to which I was a witness, hoping that it will not be unsuitable to your columns.

In the coal districts of Scotland there are some mines dangerous to work in, from their near connection with old waste pit that are generally filled with water. In 1830, the water from a waste (old pit,) broke into another where 3 miners were at work, in the middle of the night. Two of them reached the bottom and were drawn up, the other named Morton. perished, leaving a wife and three children to lament his loss. In four hours the water had risen 6 fathoms in the pit which was 13 fathoms deep and 4 feet square, and the mine 2 feet square and one fourth of a mile long. No sooner was the mournful event made known to the other miners in the district (Barrhead) than they all left work and crowded to the pit where the accident had occurred and for all the great amount of water which had accumulated, with such good will did they work and relieve each other, that in the course of 24 hours, just by the common windlass and bucket, all the water was discharged and the body of the lifeless miner recovered.

Fall River. J. REED.

The Women of California.

Of the women, with their witchery of manner, it is not easy, or rather it is not possible for a stranger to speak with impartiality, inasmuch as our self-love is naturally enlisted in favor of those who, in every look tone and gesture, have apparently no other end in view than the pleasure of pleasing us. With regard, however, to their physical charms, as distinguished from the adventitous accomplishments of education, it is difficult even for a willing pen to exagerate, Independently of feeling or motion, their sparkling eyes and glossy hair are in themselves sufficient to negative the idea of tameness and insipidity; while their sylph like forms evolve fresh graces at every step, and then eloquent features eclipse their own inherent comeliness by the higher beauty of expression. Though doubtless fully conscious of their attractions, yet the women of California, to their credit be it spoken, do not "before their mirrors count their time," being on the contrary by far the more industrious half of the population. In california such a thing as a white servant is absolutely unknown, masmuch as neither man nor woman will barter freedom in a country where provisions are actually a drug, and clothes almost a superfluity; and accordingly in the absence of intelligent assistants, the first ladies of the province, particularly when treated, as they seldom are, by native husbands, with kindness and consideration, discharge all the lighter duties of their households with cheerfulness and pride. Nor does their plain and simple dress savor much of the toilet. They wear a gown sufficiently short to display their neatly turned foot and ankle to their white stockings and black shoes, while perversely enough they bandage their heads in a handkerchief, so as to conceal all their hair except a single loop on either cheek; round their shoulders, moreover, they twist a shawl, throwing over all when they walk, or go to mass, the "beautiful and mysterious mantilla."

If Sir George Simpson is correct in the above description, we hope that when California comes into the possession of the United States, that the dignity given to labor by the matrons of the west, will not give place to the insipid prejudice with which labor is looked upon by too many of our republican dames.

Spontaneous Combustion.

The United States steam ship Mississippi took fire a short time since at Vera Cruz. It was occasioned by the spontaneous combustion of her coal and was only extinguished by the greatest exertions of the crew.

Foreign Items.

Pope Pius IX. on the 15th ult gave an audience to the son of the Liberator of Ireland, and made a eulogy on Daniel O'Connell, in terms which must have excited the gratitude and admiration of the young member for Dundalk. At the moment at which the visitor arose, after having kissed the feet of the holy father. the Pope said to him: "Since I am deprived of the happiness so long desired, of embracing the hero of Christianity, let me, at least, have the consolation of embracing his son!" And at the same time the holy father pressed him twice to his heart.

A correspondent of *The Times* proposes that the flour of the horse chesnut should be used for the stiffening of calico, &c., instead of flour obtained from wheat.

Such is the rage for emigration in Germany, that a new word, *Europamude*, tired of Europe, has come into fashion, to express the discontent of the people with their native land.

In the High Court of Justiciary, at Edinburgh, many a juryman, who had attended the court in a state of intoxication, was fined £20.

A singular old gentleman, conceiving himself overcharged in a surgeon's bill, sent word by the servant of the practitioner to his master, "That for his medicines he would pay, but as for his visits he would *return them*."

A respectable bookseller, of Birmingham, has received an intimation that he has rendered himself liable to fourteen year's transportation, by exhibiting for sale valentines, &c., which resemble bank notes. It appears such is really the case, in England.

A little church, of a pretty Gothic design, (says the Jerusalem correspondent of the *Daily News*,) is waiting for the roof, which, though of timber, is to be brought from England. The highest point of Mount Sion crowned with an English church is an interesting object for contemplation.

Singular Accident to a Snipe.

A dead snipe was found lately in one of the Castle meads, Hertford, England. It had evidently been starved to death with food in its break. The upper part of its long bill was jammed into a piece of hollow reed about an inch long, and in the lower part of the bill towards the point was enclosed a small beetle. The bird had no doubt been boring into the reed of the beetle, and the stump of a reed had broken, leaving a portion fitting so tightly round the upper part of the bill as not to be removed by any efforts the bird could make. The bird has been stuffed by Mr Knight with the beetle within, and the reed around its bill, as a curiosity.

Walking and Riding.

Walking is the best of all exercises. It is better than riding. It gives motion and exercise to the whole body. Look at the indian. He can walk farther in a day than an enfeebled white man can ride. He can in a few days tire out the best horse. Early rising, with a morning's walk of half a mile is the best of medicines for persons of sedentary habits.

The use of the horse has created a disrelish for walking. Ladies and gentlemen now make hot house plants of themselves and must be moved round, rather than move themselves. President Jefferson was of the opinion that we have lost more by the use of the horse than we have gained

Heroism in a Child.

Two little children of Robert Donnell, of Montgomery, Alabama, were severely scalded on the 25th ult., By the upsetting of a tea-kettle. One of them, a little boy, died in a few hours. The *Journal* relates of the little sufferer, only seven years old, that when the servant rushed to remove the kettle from off him, he cried out, "Let me alone and save sister;" and throughout evinced great patience and equanimity, until death closed the scene of suffering.

New Waterfall.

There has been a new waterfall discovered in the river of St. Louis. This cataract falls into the western part of Lake Superior, which has never yet been described by the geographer. It would appear that this new wonder is second only to the Falls of Niagara. The volume of water is immense, and the height of the fall is fifty feet.

Extraordinary Inland City.

About the time Col. Doniphan made his treaty with the Navijos, a division of his command was entirely out of provisions, and the Navijos supplied his wants with liberality. A portion of the command, together with Col Doniphan, went to the city of the Sumai Indians, living on the Rio Piscow, which is supposed to be a branch of the Gayla, made a treaty of peace between the Sumai and Navijo, and then returned to the Rio Del Norte These Sumais, unlike the Navijos, live in a city, containing probably 6000 inhabitants, who support themselves entirely by agriculture. This city is one of the most extraordinary in the world. It is divided into four solid squares, having but two streets crossing its centre at right angles. All the buildings are two stories high, composed of sunburnt brick. The first story presents a solid wall to the street, and is so constructed that each house joins, until one fourth of the city may be said to be one building. The second stories rise from this vast solid structure, so as to designate each house, leaving room to walk upon the roof of the first story between each building. The inhabitants of Sumai enter the second story of their buildings by ladders, which they draw up at night as a defence against any enemy that may be prowling about. In this city was seen some Albino Indians, who have no doubt given rise to the story that there is living in the Rocky Mountains a tribe of white aborigines The discovery of this city of the Sumai will afford the most curious speculations among those who have so long searched in vain for a city of the Indians who possessed the manners and habits of the Aztecs. No doubt we have a race here living as did the people when Cortez entered Mexico. It is a remarkable fact that the Sumaians have, since the Spaniards left the country, refused to have any intercourse with the modern Mexicans, looking upon them as an inferior people. They have also driven from among them the priests and other dignitaries, who formerly had power over them, and resumed habits and manners of their own, their Great Chief or Governor being the civil and religious head. The country round the city of Sumai, is cultivated with a great deal of care, and affords food not only for the inhabitants, but for large flocks of cattle and sheep.

Wealth of the Bay State.

In 1790, the whole real and personal property of the State of Massachusetts, was estimated at $44,024, 347. In 1809 it had increased to 97, 949, 616. In 1830, it was $205,856, 422, and in 1840, it amounted to $299'880,338. The average in 1840, was $406 50 to each resident of the state, the number of inhabitants being more than 700,000, and in 1847, it will amount to about $3,784,000. From these facts it appears that wealth increases in Massachusetts, three times faster than the population. Were the whole property of the State equally divided, every family consisting of five persons, would have an estate worth $2,032. But the cost of living has kept pace with the increase, for the average surplus over consumption is only about ten dollars per head.

Carmen.

The Court of Common Pleas at Boston, has given judgment against the owners of a truck, for $450, in favor of the parents of a little girl 6 or 7 years of age. The truckman, left his truck with the shafts propped up by a stick of wood, and the child, while playing around it, knocked down the support and the shaft fell upon her, breaking one of her limbs.

New Telegraph Lines.

Two new telegraph lines diverging from Rochester, are in contemplation. One is to run to Medina, 40 miles, touching at Brockport and Albion; the other to Danville, 52 miles, with stations at Scottsville, Genesee, Avon and Mount Morris.

Cobre Copper Mines.

These mines, in the, Island of Cuba, are worked by British capitalists, and the ore smelted in England; In 1842 to 1846, five years, these mines produced, 95,444 tons of copper ore, which, was sold for $5,363,250.

© 1847 SCIENTIFIC AMERICIAN, INC

TO CORRESPONDENTS.

" E. G. of Mass."—The amount of effective force together with the proportionate resistance ought to have been explained minutely. The enquiry first made is, when is first impulse applied and in what manner.—Your machine is too complex and you will find that it will not operate to any advantage. Experiment may yet lead to something more simple in combination with the gravity as well as the buoyancy of fluids.

" A. W. of New Jersey."—For two run of stones it will take 24 horse power at least.—The expense per day would be not less than $6. The cost of the engines, their advantages, expense, and all expense connected with them, can be obtained by communicating with Phelps & Messenger, Lodi Mills, Syracuse. N. Y. They have an engine and water wheel and can tell their relative advantages

" T. D. S. of Mass."—The exact pressure and resistance ought to have been stated in the account of the feeder. If the weight of the water is no more than the effective pressure of the steam in the boiler, then their forces are equal. The regulation of these forces is not definitely explained. The least condensation of steam in the boiler forms a vacuum and the water then will rush into the boiler from a level far below that of the boiler's. The grand desideratum is a continual supply in proportion as the steam is exhausted without the least loss of any steam by the escape. The data to go by is, that whatever period is required to heat a mass of water from 50° to 212°, six times that period is required with a regular heat for its evaporization. A cubic inch of water expands to 1600 by heat.

" J. A. T of Alabama."—We cannot advise you to get a Rotary Engine for a Grist Mill Some few have operated tolerably well on a small scale, but not one has been successful on a large scale. Get a good parallel engine. We know not of a single Rotary Engine in operation of 20 horse power and there are none of that size made in this city.

" T. E. H. of N. B."—We shall answer you by mail.

" S. W. of Mass."—You shall receive the desired information soon.

" L. A. of Mass."—Bolton and Watt suppose a horse able to raise 32,000 pounds avordupois one foot high per minute. Desaguliers makes 27,500, and Smeaton 22,916. Bolton and Watt, however, in calculating the power of their engines, suppose a horse to draw 200 lbs. at 2½ miles per hour, or 220 feet per minute with a continuance drawing a weight over a pulley. Now 200 220=44,000 lbs. 1 foot per minute, or 1 lb. 44,000 feet per minute. The latter is Brunton's method of calculating horse power. You can examine models of patented machines at the Patent Office free of expense.

" W. B. of Mass.—The institution of which you enquire (using the fashionable term as expressed here,) we consider a humbug.

" J. H. W. of Me."—Your name was sent as a 6 months subscriber only, and no money received at that. By the way, where is Mr. Barrett ?

" R. M. of L."—The capacity and character of Jacobs' machine is unknown here.

" B. W. C. of Mass."—A pamphlet with a full description of Morse's telegraphic alphabet has been published, and is for sale at almost every Telegraph office. It will give you all the desired information minutely

" P. G. of N. Y."—The combination of the wind-mill and water-wheel for a more regular motion than by the wind-mill alone, is good for such a purpose. but it is not new, neither is the steam engine for such a purpose. A good steam engine would be more economical of itself You will perceive that to have a steam engine, water-wheel and wind-mill, all to do what the steam engine could do alone, would be a very injudicious expenditure.

The American Art Union now numbers about 1500 subscribers, being an increase of 200 per cent during the past year. This evidence of its success is very gratifying. The institution is doing much for the promotion of the fine arts in our country, and we hope it will yet receive the most ample encouragement.

Fires.

It is a singular coincidence that St. Paul's Church in Philadelphia and St. Paul's Church in Rochester, N. Y., were both destroyed by fire on Sunday last. The former was struck by lightning, fired and totally consumed. The congregation had barely been dismissed when the accident occurred. The building cost $28,000, was nearly new, and insured for $17,000. The origin of the fire which destroyed the latter is unknown. At two o'clock in the morning the belfry was discovered to be on fire, and in less than an hour the magnificent edifice was a heap of ruins. It was built in 1829 at a cost of $30,000, and was insured for $10,000

The MSS. and scientific books left by the late Professor Hassler, of the Coast Survey, were destroyed by fire at his son's residence in Philadelphia, a few days ago. $30,000 had been offered by the United States Government for them.

The roof the large building in Roxbury, Mass., occupied by the Boston India Rubber Belting Co., and a hosiery knitting establishment, was struck by lightning. one day last week, causing a loss to the occupants of about $3000.

The woolen factory of Meacham & Taylor, Marcellus, Onondaga Co. N. Y., was destroyed by fire on the evening of the 20th instant, with about 10.000 lbs. of coarse wool. Loss $10,000—of which $4000 only was covered by insurance.

The extensive tack factory of Campbell & Chess, in Birmingham near Pittsburgh, with several adjoining houses, was consumed by fire on Wednesday week.

A destructive fire occurred at Ripley, Ohio, on the night of Tuesday week, which destroyed ten or twelve buildings, including the warehouses of D. Every, J. Pennington and Pazton & Collins.

Making Brick by Machinery.

In one yard near Boston, there are now at work twenty machines, of which ten are at work one day and the other ten on the next. These are operated each by four men. A steam engine is employed to prepare the clay. This establishment has made one hundred thousand bricks a day for many days past, and that is a regular day's work, ending at 4 o'clock P. M. each day. The machines are of the patent of A. Hall, Perth Amboy, N. J.

Wyeth, the Artist.

We were invited to this gentleman's rooms a few days since to examine some specimens of oil paintings by this artist, which we took great pleasure in examining. It is evident to every one that is acquainted with Mr. Wyeth's ability as a painter that he is a most talented artist, and for correctness of likeness in his portraits, we never have seen a professor of the art that represented life so perfectly as this gentleman, His rooms are at the Temperance House, 63 Barclay street, where he would be pleased to exhibit his specimens to any who may be disposed to favor him with a call.

Literary Notices.

The Phonographic Reporter's First Book No. 1; and the Phonotypic Reader, for the use of schools and families, are works just published by Andrews & Boyle, Nassau street, over the Sun office. This science is worthy of much attention.

Columbian Magazine.

The August number of this splendid monthly has made its appearance and is truly an elegant one. It contains three beautiful engravings and is composed of matter from some of the most talented authors of the day.—Ormsby & Hacket publishers, 116 Fulton st.

Union Magazine.

Number 2 of this splendid Magazine has made its appearance, and like the former number, is a beautiful specimen of American literature and art. It is published by Israel Post, 140 Nassau st.

DAUGERRIAN GALLERY.

GURNEY'S

PREMIUM DAUGERRIAN GALLERY.

No. 189 Broadway, N. Y.

☞Pictures taken at this establishment warranted to give satisfaction. j.4

ADVERTISEMENTS.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the ollowing rates :

One square, of eight lines one insertion,	$ 0 50
" " " " two do.,	75
" " " " three do.,	1 00
" " " " one month,	1 25
" " " " three do.,	3 75
" " " " six do.,	7 50
" " " " twelve do.,	15 00

TERMS:—CASH IN ADVANCE.

GENERAL AGENTS

FOR THE SCIENTIFIC AMERICAN.

New York City, -	Geo. Dexter.
" " -	Wm. Taylor & Co.
Boston, - - -	Messrs. Hotchkiss & Co.
Philadelphia, -	Stokes & Brother.
Boston, - - - -	Jordon & Wiley.

LOCAL AGENTS.

Albany, - - - -	Peter Cook.
Baltimore, Md., - - -	S. Sands.
Cabotville, Mass., -	E. F. Brown.
Concord, N. H.	Rufus Merrell.
Fall River, Mass. - -	Pope & Chace
Hartford, Ct., - - - -	E. H., Bowers.
Lynn, Mass, - -	J. E. F. Marsh.
Middletown, Ct., - -	Wm. Woodward.
Norwich, Ct., - - -	Safford & Parks.
New Haven, Ct., - -	E. Downes.
New Bedford, Mass., -	Robinson, Parsons & Co.
Newark, N. J., - -	J. L. Agens.
Newark, N. J - -	Robert Kashaw.
Providence, R. I., - -	H. & J. S. Rowe.
Rochester, N. Y. -	D. M. Dewey.
Springfield, Mass., - -	Wm. B. Brocket
Salem, Mass., - - -	L. Chandler.
Saco, Me., - - - - -	Isaac Crooker.
Troy, N. Y., - - -	A. Smith.
Taunton, Mass., - -	W. P. Seaver.
Williamsburgh, - -	J. C. Gander.
Dover, N. H. - - - -	D. L. Norris.

CITY CARRIERS.

Clark Selleck, Squire Selleck.

Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor.

BOOKS ! BOOKS !!

☞We would inform those who are desirous of procuring the New Series of valuable and interesting publications now issuing by Messrs Fowlers & Wells, that we have made arrangements with them whereby we can furnish their works at Publishers' prices.

JUST ISSUED.

Matrimony—Hints on selection of companions - - - - -	Price 25 cents.
Fascination, or the Philosophy of Charming	40 cents.
Woman—her education and influence -	40 cents.
Chemistry—its various new and novel applications - - - - -	20 cents.
Lectures on the Philosophy of Mesmerism	25 cents.
Phrenological Almanac, - per dozen,	50 cents.

The above works may all be sent by mail.

Address, post paid,

MUNN & CO., Publishers,

j17 128 Fulton street, N. Y.

SMITH'S
Improved Electric Machines.

☞We have received a new lot of Smith's Magnetic Machines, which far surpass any we have ever before offered to the public. They are put up in much neater shape and better adapted to medical purposes than any that have ever been sold in this city previous to the recent improvements in these machines.

For particulars relative to the wonderful cures performed by these truly wonderful machines, we would refer you to the inventor, who has original letters from those cured, that he would be pleased to show at his office.

Price $12, neatly put up in mahogany cases, with a book of explanation to accompany.

Orders from any part of the United States, promptly attended to. Address

j3 tf MUNN & CO. (post paid) New York.

To Builders and Hardware Dealers.

☞ We would inform those who deal in or have occasion to use DOOR LATCHES in the construction of buildings, that we have just received a large lot of Mortice Latches, which we can furnish at a less price than the original cost to manufacture them. They are of a beautiful pattern and some of them of an entirely new style They may be had in any quantity, by application at this office. MUNN & CO. 128 Fulton st.

Engraving on Wood

NEATLY AND PROMPTLY EXECUTED AT the Office of the Scientific American, 128 Fulton st, three doors from the Sun Office. Designs DRAWINGS of all kinds for PATENTS, &c. also made as above, at very low charges,

Lap welded Wrought Iron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,

d26 28 Platt street, New York

A LITERARY AND FAMILY PAPER.

THE YANKEE BLADE.

A Home Journal and Fireside Companion,

DEVOTED TO

LITERATURE, EDUCATION, MORALS, FUN, NEWS, &c.

Published every Saturday at $2 per annum

☞This Literary and Family Journal having during the past six years, met with the most brilliant and unexpected success, numbering its subscribers by thousands, in almost every quarter of the Union, —the Publishers. grateful for the many favors shown to them, have determined to make such improvements in its character, as will greatly enhance its attractiveness and value, and render it worthy of still higher applause. For this purpose they have just purchased at much expense from the foundry of Mr. S. N. Dickinson, several founts of new Scotch cut type, with which the paper has been dressed throughout in a style of surpassing elegance and beauty, while its size has been greatly enlarged, and various other improvements introduced, making it one of the best and most attractive newspapers in the Union.

Among other leading features, the Blade will contain from one to four of the

Richest and most Interesting Stories of the Day.

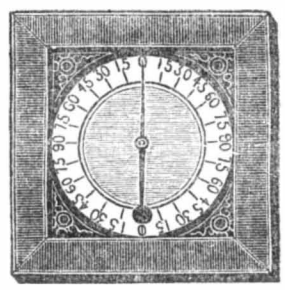
Not only original, but gems of the European and American Magazines, and in all cases a preference will be shown to such as can be published entire in a single paper. In addition its columns will be stored with POPULAR ESSAYS BY ABLE WRITERS, Choice and beautiful Poems, Gleanings from New Works, Selections from Foreign Journals, Mirth-creating Sketches, " Whittlings," Jokes, Scraps, News Items, and every thing else that can give zest and piquancy to the feast.

In brief, our object will be to render it an agreeable, entertaining and ever welcome Family Visitor, brimming always with INSTRUCTION and AMUSEMENT, and especially desirable to the FAMILY CIRCLE. MATHEWS, GOULD & CO.

Publishers. 133 1-2 Washington st., Boston, Mass.

☞J. A. Tuttle & Co., 116 Nassau st. N. Y.; Stokes & Brother, Arcade, Philadelphia; and William Taylor, Baltimore, Md., are Agents for the Blade. j26

Plumb and Level Indicator.



THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S. by Express.

For sale, wholesale and retail, at this office. Address MUNN & CO (post paid) ☞Price $1 single A discount to dealers. m13 tf

PATENT AGENCY AT WASHINGTON.

ZENAS C. ROBBINS,

Mechanical Engineer and Agent for procuring Patents.

WILL prepare the necessary Drawings and Papers for applicants for Patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the Patent Laws and decisions in the United States or Europe. Persons at a distance desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward (post paid, enclosing a fee of five dollars) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, promptly communicated. All letters on business must be post paid, and contain a suitable fee, where a written opinion is required.

Office on F street opposite Patent Office.

He has the honor of referring, by permission, to Hon. Edmund Burke, Com. of Patents; Hon. H. L Ellsworth, late do; H. Knowles. Machinist, Patent Office; Judge Cranch, Washington, D. C.; Hon. R. Choate, Mass., U. S. Senate: Hon. W. Allen, Ohio, do; Hon. J. B. Bowlin, M. C. Missouri; Hon. Willis Hall, New York; Hon. Robert Smith, M. C. Illinois; Hon. S. Breese, U. S. Senate: Hon. J. R. Relfe, M. C. Missouri; Capt. H. M. Shreve, Missouri. j23

GENERAL PATENT AGENCY.

REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 12 Platt to 189 Water street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.

m8 3m* SAMUEL C. HILLS, Patent Agent.

AMERICAN HARDWARE.

THE SUBSCRIBER having been engaged in selling American Hardware on commission for 7 years, solicits consignments from manufacturers, and will refer to those who have employed him the above number of years. SAMUEL C. HILLS,

m13 3m* 189 Water st

AGRICULTURAL TOOLS.

INVENTORS and Makers of superior Agricultural implements are notified that the subscriber will sell such articles on commission, and make prompt returns. SAMUEL C. HILLS,

m8 3m* 189 Water st.

© 1847 SCIENTIFIC AMERICIAN, INC

Assaying Metals.

This process is very often spoken of in the papers, but many persons, perhaps, do not know yet would like to know how it is managed

The miners grind the gold rock fine, keeping it wet constantly? and as it becomes fine, it washes off. They have a kind of hard stone for grinding. They then mix quicksilver with it, and that collects the gold dust. It is washed out, dried, and goes through some heating process. The gold dust is then usually sold to the superintendent of the mint. Sometimes the miners melt the dust and cast it into a bar before offering it at the mint. To find the value, each parsel has to be *assayed*. The assaying is the most curious and scientific of all the business in the mint. The melters take the gold dust, melt it, and cast it into a bar, when it is weigned accurately, and a piece is cut off for the assayer. He takes it, melts it with twice its weight of silver, and several times its weight of lead. It is melted in small cups made of bone-ashes, which absorb all the lead; a large part of the silver is extracted by another process, and the sample is then rolled out to a thin shaving, coiled up and put in a sort of glass vial called a mattrass with some nitric acid.

The mattrasses are put on a furnace and the acid is boiled some time, poured off, a new supply put in, and boiled again. This is done several times, till the acid has extracted all the silver and other mineral substances, leaving the sample pure gold. The sample is then weighed, and by the difference between the weight before assaying and after the true value is formed. All the silver over and above five pennyweights for each lot, is paid for by the mint at its true value. The gold after it has been assayed, is melted, refined, and being mixed with its due proportion of alloy, (equal parts of silver and copper,) is drawn into long strips, in shape not unlike an iron hoop for a cask; the round pieces cut out with a sort of punch, each piece weighed, and brought to the right size by a file, if too heavy, when it is *milled*, or the edge raised, and put into a stamping press, whence it comes forth a perfect coin.

Electric Incandescence of Charcoal Points

The most splendid phenomenon of this kind is the combustion of charcoal points — Pointed pieces from gas retorts answer best. If two such points are put in immediate contact with the wires of a galvanic battery and brought together, they will begin to burn with a dazzling white light. Professor Bunsen obtained a similar flame from a battery of four pairs of plates, its carbon surface containing 29 feet. The heat of this flame is so intense, that stout platinum wire, sapphire, quartz and lime are reduced by it to a liquid form. No combustion, singular as it may appear, takes place in the charcoal itself, which sustains only an exceedingly minute loss in weight, and becomes rather denser at the points. The phenomenon is attended with a still more vivid brightness if the charcoal points are placed in a vacuum, or in any gas which is not a supporter of combustion Instead of two charcoal points one only need be used if the following arrangement is adopted: lay the piece of charcoal on some quicksilver that is connected with one pole of the battery and complete the circuit from the other pole by a strip of platinum. Professor Peschell says that when he has used a piece of well burned coke in the manner described, he has obtained a light intolerable to the eyes.

Daguerrotyping Lightning.

The St. Louis Revelle says that an artist in that city has, after repeated experiments, actually succeeded in Daguerrotyping a *streak of lightning*, a gentle streak of the real snake order. So perfect and instantaneous was the operation that myriads of intervening drops of rain were transferred with wonderful distinctness to the plate, every drop retaining its globular form, showing that no appreciable space of time was consumed in the operation.

THE ART OF PAINTING.

(Continued from No 44.)

LANDSCAPE PAINTING ON WALLS OF ROOMS.

In painting the pictures of steamboats, ships and other vessels, it is convenient to have a variety of outline drawings of vessels of various kinds, sizes and positions on paper; the backside of these papers are to be brushed over with dry venitian red; then by placing one of the papers against the wall, and tracing the outlines with a pointed piece of iron, bone or wood, a copy thereof is transferred to the wall ready for coloring. The painting of arbors, houses, villages, &c. is greatly facilitated by means of stencils, (perforated pieces of paper, described in a former number.) For this purpose several stencils must be made to each other; for example, one piece may have the form of the front of a dwelling-house or other building, cut through it; another piece may have the form of the end of the same house, as viewed from an oblique direction; a third piece may be cut to represent the roof, and a fourth may be perforated for the windows. Then by placing these successively on the wall and painting the ground through the aperture with a large brush, and with such colors as the different parts require, the appearance of a house is readily produced, in a nearly finished state. If the house stands on the second distance, the windows are painted with blue-black; on the third distance, the color used is a mixture of blue-black and sky-blue, a little changed with the color last mentioned, is used. It has been before remarked that all the colors used in representing figures on the fourth distance, are to be reduced with sky-blue, so as to give them a faint appearance. Trees and hedge-fences, or stone walls, on the third and fourth distances, are formed by means of the flat bushing brush, before described. This is dipped in the required color and struck endwise upon the wall, in the manner to produce, not a full print, but a cluster of small prints or spots, thus:

By adroit variations of the motion of this brush, all the variety of trees and shrubs may be represented in open ground, as well as forests and distant woodlands. The first color used in trees of the third distance, is a mixture of forest green, blue, and white; the green predominating. This color is applied the heaviest on the side opposite the light, termed the shade side. The light side is then formed with the same or a similar brush, and with lemon-yellow, slightly tinged with green The stocks of the trees are first drawn with slate-color, and heightened with horizon red In painting forests, it is common to apply a diversity of colors in the heightening, such as lemon-yellow, yellow-green, French green, vermillion, yellow ochre, and sometimes white. For the trees and woodlands of the fourth distance, a pale blue color, slightly changed with green is used. In the illustration at the head of this article, a variety of trees with fields and fences, are represented in miniature; but the coloring will be more fully described in our next number. We purpose giving a dozen or more outline designs, for the use of young practitioners.

(To be continued.)

Microscopic Wonders.

Upon examining the edge of a very shar lancet with a microscope, it will appear as broad as the back of a knife; rough, uneven. full of notches and furrows. An exceedingly small needle resembles a rough iron bar. But the sting of a bee, seen through the same instrument, exhibits every where a most beautiful polish, without the least flaw, blemish or inequality, and it ends in a point to fine to be discerned. The threads of a fine lawn seem coarser than the yarn with which ropes are made for anchors. But a silk worm's web appears perfectly smooth and shining, and every where equal. The smallest dot, that can be made with a pen, appears irregular and uneven. But the little specks on the wings or bodies of insects are found to be most accurately circular. The finest miniature paintings appear before the microscope rugged and uneven entirely void of beauty, either in the drawing or coloring. The most even and beautiful varnishes will be found to be mere roughness. But the nearer we examine the works of God, even in the least of his productions, the more sensible shall we be of his wisdom and power. In the numberless species of insects, what proportion, exactness, uniformity, and symetry do we perceive in all organs! what profusion of coloring! azure, green and vermillion, gold, silver, pearls rubies and diamonds; fringe and embroidery on their bodies, wings, heads and every part! how high the finishing, how inimitable the polish we every where behold.

Magic Mirrors.

A late report of the French Academy of Sciences, gives the following account of metallic mirrors, which are brought from China, and are called Magic Mirrors. They are said to possess a fanciful and entirely useless property. The back usually presents characters which are in relief or cut in, and which seem to be of a date long back. Those who do not read the Chinese language easily, would imagine that these characters merely represented the merchants' address. But when the full solar light falls upon the polished surface of the mirror, and the reflected focus is received upon a screen, it is observed that this focus instead of giving an image of uniform intensity, shows a representation, more or less faithful, of the characters which exist on the back surface of the mirror. What is singular about it is, that in looking directly at the reflecting surface, there is not perceptible in the polish any inequalities sufficient to account for the fallacious appearances which are shown in the direct rays of the sun. This phenomenon is not altogether destitute of importance. Well finished mirrors sell in China as well as in France, fifteen to twenty times higher than others. This is enough to explain why manufacturers who possess the secret keep it closely As to the learned in the Celestial empire, it seems that in general they are ill informed on this subject. M. Stanislaus Julien has discovered however, in the writings of a certain Ou-tsen-king, some information referring to it. The Chinese writer says "on the back of a mirror formed of fine copper, is produced, by casting it in a mould, a dragon placed in a circle, and on the other face of the disc, a second dragon exactly similar to the first. Afterwards with a kind of copper a little more coarse, the deep lines of the engraving are filled up, and this metal is incorporated with the first, which must be of a purer quality, by submitting the mirror to the action of fire, after which the face of the mirror is smoothed and dressed and a light coat of brass spread over it. When the polished disc of a mirror thus prepared is turned towards the sun, and its images reflected on a wall, it presents distinctly the light and dark shades, which come some from the purer parts of the copper, others from the coarser portions." Ou tsen-king affirms that he has seen a mirror of this kind broken, and that he verified himself the exactness of his description.

RECIPES.

Cement used by Copper-smiths and Engineers to Secure Joints.

Boiled linseed oil and red lead mixed together into putty. The washes of leather or cloth are smeared with this mixture in a pasty state. Resin mastic alone is sometimes used by jewellers to cement, by heat, cameos of white enemal or colored glass to a real stone, as a ground to produce the appearance of an onyx.

Plumbers Cement.

Black rosin one part, brick dust two parts, well incorporated by a melting heat.

Cement of Dibl for coating the fronts of Buildings.

This cement consists of linseed oil, dried by being boiled with litharge, and mixed with porcelain clay in fine powder, or plaster of paris, to give it the consistence of stiff mortar. Any color may be given with ground bricks or pottery. A little oil of turpentine aids its cohesion upon stone, brick, or wood; it may be applied to sheets of wire cloth, and laid upon terraces, to make them water tight; but lead is not much more expensive.

Black or Bituminous Cement for Bottle Corks.

This cement consists of pitch hardened by adding rosin and brick dust.

Iron Rust Cement.

Mix from 50 to 100 parts of iron borings, pounded and sifted, with 1 part of sal ammoniac. When it is to be applied, mix it with water sufficient to give it a pasty consistency

Another Cement of the Same Kind.

Mix 4 parts of fine borings or fillings of iron with 2 parts of potter's clay, and 1 part of pounded potherds, making them into a paste with salt and water. If allowed to concrete slowly on iron joints, this cement becomes very hard.

A Moulding Composition for Making Architectural Ornaments in Relief.

Is formed of glue, chalk, and paper paste; the paper aiding the cohesion of the mass. Even statues have been made with it.

It is said that a bowl, containing two-quarts of water, set in an oven when baking, will prevent pies, cakes, bread, &c., from being scorched Doubtful, very.

THE NEW YORK
SCIENTIFIC AMERICAN:

Published Weekly at 128 Fulton Street, (Sun Building,) New York, and No. 13 Court Street, Boston; the principal office being at New York.

BY MUNN & COMPANY.

The SCIENTIFIC AMERICAN is the Advocate of Industry and Journal of Mechanica. and other Improvements: as such its contents are probably more varied and interesting, than those of any other weekly newspaper in the United States, and certainly more useful. It contains as much interesting Intelligence as six ordinary daily papers, while for *real benefit*, it is unequalled by any thing yet published Each number regularly contains from THREE to SIX ORIGINAL ENGRAVINGS, illustrated by NEW INVENTIONS, American and Foreign,—SCIENTIFIC PRINCIPLES and CURIOSITIES,—Notices of the progress of Mechanical and other Scientific Improvements Scientific Essays on the principles of the Sciences of MECHANICS, CHEMISTRY and ARCHITECTURE,—Catalogues of American Patents,—INSTRUCTION in various ARTS and TRADES, *with engravings*,—Curious Philosophical Experiments,—the latest RAIL ROAD INTELLIGENCE in EUROPE and AMERICA,—Valuable information on the Art of GARDENING, &c. &c.

This paper is especially entitled to the patronage of MECHANICS and MANUFACTURERS, being devoted to the interests of those classes. It is particularly useful to FARMERS, as it will not only apprise them of IMPROVEMENTS in AGRICULTURAL IMPLEMENTS, but INSTRUCT them in various MECHANICAL TRADES, and guard against impositions. As a FAMILY NEWSPAPER it will convey more USEFUL Intelligence to children and young people, than five times its cost in school instruction.

Being published in QUARTO FORM, it is conveniently adapted to PRESERVATION and BINDING.

TERMS.—The Scientific American is sent to subscribers in the country at the rate of $2 a year, ONE DOLLAR IN ADVANCE, the remainder in 6 months. Persons desiring to subscribe, have only to enclose the amount in a letter, directed to

MUNN & COMPANY,
Publishers of the Scientific American, New York.

☞ Specimen copies sent when desired. All Letters must be POST PAID.

© 1847 SCIENTIFIC AMERICIAN, INC